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ABSTRACT

Canadians' employment and working patterns were examined by analyzing the 1998 survey called New Approaches to Lifelong Learning and other recent surveys by Statistics Canada. "Work" was defined as comprising household labor, community volunteer activities, and paid employment, and "learning" was defined as comprising informal learning activities, initial formal schooling, and adult education courses and programs. The data indicated that Canadian adults generally spent as much time in unpaid household and community work as in paid employment. Canadians were extensively involved in learning throughout their lives. According to their self-reports, Canadian adults devoted an average of 15 hours each week to informal learning activities related to their paid employment, household duties, volunteer community work, and other general interests. Those in the labor force averaged 6 hours each week in job-related informal learning pursuits. A generally positive association between the amount of time people spend in paid employment, household labor, and community work and the time spent in work-related informal learning was found. Employment-related informal learning was more extensive than course-based training across nearly all employment statuses and occupational groups. At least 20% of the employed labor force saw itself as having skill levels exceeding those required by their jobs. (Contains 27 tables and 152 references.) (MN)



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**WORKING AND LEARNING IN THE INFORMATION AGE:
A PROFILE OF CANADIANS**

D.W. LIVINGSTONE

A Report Prepared for the Canadian Policy Research Networks, 2001.

D.W. Livingstone is the leader of the national research network on New Approaches to Lifelong Learning (NALL), which is funded by the Social Sciences and Humanities Research Council of Canada (SSHRC). He is also head of the Centre for the Study of Education and Work (CSEW) at the Ontario Institute for Studies in Education at the University of Toronto. More information on NALL and CSEW may be found at the website: www.nall.ca

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This report owes its existence primarily to two people. Allen Tough is widely credited with initiating the modern 'empirical study of adults' informal learning in the 1960s. As a former colleague at OISE, he directly inspired my initial interest in this field, and more recently collaborated with several others in the creation of the SSHRC-funded research network for New Approaches to Lifelong Learning (NALL). This last provided funding support for the first national survey of informal learning practices – the central data source for this analysis. Graham Lowe, Director of the Work Network at CPRN, has played a leading role in recent empirical research on school-work transitions and education-job mismatches in this country. He commissioned this report, offered astute editorial advice, and ably navigated its completion.

Doug Hart and Milosh Raykov are primarily responsible for the multitude of statistical analyses of the NALL and AETS survey data sets. Jill Given-King assisted with the formatting of the text. Many of my colleagues in the NALL research network provided helpful hints along the way (for a full listing see the NALL website: www.nall.ca). I am also grateful to three anonymous reviewers for their constructive criticisms of a prior draft. However, the responsibility for the interpretation of findings and any remaining errors or omissions is mine alone.

FOREWORD

Canada is still a society that uses academic credentials as a screening device. Degrees or diplomas earned, and courses taken are considered key indicators of the skills a person brings to a job. But we all know that learning goes far beyond formal schooling. Much of what we know we learn informally by observing others, participating in an activity, asking questions, independent reading, watching television, or surfing the net. These activities can happen at home, in the workplace, or elsewhere.

In this paper, David Livingstone examines the different types of informal learning undertaken by Canadians, and looks at this in conjunction with time spent on paid employment, household labour and community work. He also sets his discussion of informal learning within a broader discussion of the 'knowledge-based economy' and 'overqualification' in the Canadian labour force. Readers should note that Dr. Livingstone stakes out contentious positions on both of these issues.

On the first issue, Dr. Livingstone states that the emergence of the knowledge-based economy has been overstated and argues that most Canadians are still employed in fairly routine jobs characterized by little or no increase in the level of skill required to perform them. While there is no precise threshold that marks the presence of a 'knowledge-based economy' (a point made in the paper), we believe that the evidence on the widespread application of new technologies, the development of new production processes, and the emergence of new industries points to a significant increase in skill requirements, and that this trend is likely to continue.

On the second, Dr. Livingstone points to structural unemployment, temporary employment, and measures of education-job mismatches as evidence of underemployment (or over-qualification). Before Canadians can reach a view on this issue, we believe that further research is needed. We need to understand more about how people tend to assess their own skills; in what ways their capabilities exceed the demands of their job; where these people are in their life cycle; and how long their apparent underemployment lasts.

I would like to thank Dr. Livingstone for his work. Research and policy discussion are advanced when we are challenged to consider competing views. His paper does challenge some widely held ideas and offers an alternative perspective. The great merit of this paper is that Dr. Livingstone has raised the profile of informal learning, a field that has received little research attention in this country. His work challenges us to broaden our thinking about how people learn and how skills are acquired.

I would like to thank Human Resources Development Canada for their financial support for this project. I would also like to thank Graham Lowe, Bert Bailey and three anonymous reviewers for comments on earlier drafts.

Judith Maxwell
March 08, 2002

EXECUTIVE SUMMARY

This report offers the most inclusive documentation to date of Canadian adults' work and learning activities. 'Work' is seen as comprising household labour and community volunteer activities as well as paid employment. 'Learning' comprises informal learning activities as well as initial formal schooling and adult education courses and programs. The profiles of work and learning are based primarily on the first extensive national survey of informal learning conducted anywhere in the world in the past few decades. This was done in 1998 by the SSHRC-funded research network on New Approaches to Lifelong Learning (NAL.L). These data are supplemented by secondary analyses of the 1997 Adult Education and Training Survey (AETS) and several other recent surveys by Statistics Canada.

In terms of work, Canadian adults in general are now spending as much time in unpaid household and community work as they are in paid employment. Continual changes are taking place in employment conditions, including the growth of service sector occupations, an increase in part-time jobs and polarization of employment hours, and a diffusion of information technology through paid workplaces.

Canadians are extensively involved in learning throughout their lives. Canada now leads the world in its levels of post-secondary education. Course participation in adult education expanded very rapidly from the 1960s, although adult participation rates declined somewhat in the early 1990s and are now modest in relation to some other OECD countries. In addition, according to their self-reports, Canadian adults now devote an average of 15 hours a week to informal learning activities related to their paid employment, household duties, volunteer community work, and other general interests. Those in the labour force are spending an average of 6 hours per week in job-related informal learning pursuits. The participation rates and time involved in informal learning are much greater than in adult education courses. Informal learning for adults is like the submerged portion of an iceberg: seldom seen but essential to supporting the visible part.

Analyses of the interrelations between work and learning indicate a generally positive association between the amount of time people spend in paid employment, household labours and community work, on the one hand, and the time spent in work-related informal learning on the other. This relationship is stronger in more discretionary forms of work, however, most notably in community volunteer work. Employment-related informal learning is more extensive than course-based training across nearly all employment statuses and occupational groups. The data also indicate that at least 20 percent of the employed labour force now see themselves as having skill levels that exceed those actually required to perform their jobs, while a smaller proportion see themselves as underqualified for their work. Regardless of the current mismatch between job skills and requirements, the vast majority of workers continue to be actively involved in quite extensive employment-related informal learning activities. Neither underemployment nor underqualification have discouraged the pursuit of lifelong learning.

The pursuit of knowledge and of educational improvement should always be encouraged for human enrichment. Current adult education participation rates should be increased by improving access through educational reforms – including more flexible course scheduling, tuition fee subsidies, child-care provisions, Prior Learning Assessment and Recognition, and more responsive curricula. If the analyzed work-and-learning profiles and their interrelations are generally accurate, enhancing the quality of employment and workers'

opportunities to pursue and apply formal and informal knowledge may also require implementing economic reforms that address some more basic aspects of work reform – including the redistribution of work time and the democratization of paid work.

INTRODUCTION – PERSPECTIVES ON WORK AND LEARNING IN THE INFORMATION AGE

The conditions of work and learning now appear to be changing quickly in Canadian society. A basic assumption underlying much of the recent public discussion about work and learning is that because new jobs are increasingly requiring greater knowledge and skill, a lifelong learning culture must be created in order for Canada and Canadians to succeed in an increasingly information-based world. Virtually every recent public policy statement begins with this assumption (e.g., *Information Highway Advisory Council*, 1995, pp. vii, 57; *Advisory Committee on the Changing Workplace*, 1997, pp. 5-6; *Speech from the Throne to Open the Second Session of the Thirty-Sixth Parliament of Canada*, 2000, pp. 1,4).

This report provides new evidence to assess this assumption through a broad empirical profile of the current work and learning activities of the Canadian adult population and of their interrelations. The Introduction presents the expansive conceptions of work and learning that informed the collection of evidence, and summarizes the basic research questions and data sources that guided the analysis. The rapid diffusion of computers, which provides the basis for characterizing the current period as the "information age," is then briefly documented.

Three Spheres of Work and Learning

Contemporary thinking and research about work and learning generally suffer from narrow conceptions of both phenomena. In economically advanced societies, there are at least three distinguishable spheres of work – namely, paid employment, housework and community volunteer work – and three spheres of learning – viz., initial formal schooling, further adult or adult education, and informal learning.

"Work" is commonly regarded as synonymous with "earning a living" through *paid* (or more rarely unpaid) *employment* in the production, distribution and exchange of goods and services commodities. While this report will also focus on paid employment statuses, it will at least briefly examine other important forms of work. Most of us must do some household work, and many need to contribute to community labours in order to 'reproduce ourselves and society.' Both *housework* and *community volunteer work* are typically unpaid and under-appreciated, but they remain essential for our survival and quality of life (see Waring, 1988). Furthermore, the relations between paid work, housework and community work may represent major dimensions of future economic change. Men and women continue to renegotiate household divisions of labour, while more and more aspects of housework and community work are being transformed into new forms of paid employment.

In its most generic sense, *learning* involves the acquisition of understanding, knowledge or skills, anytime and anywhere. It takes place throughout our lives, and the sites where it occurs make up a continuum, ranging from spontaneous responses to everyday life to highly organized participation in formal education programs. Formal schooling, adult education and informal learning are the three forms of intentional learning that researchers now commonly identify.

Formal schooling is a sequentially-structured and hierarchical series of curricula and credentialing programs of study typically administered in elementary, secondary and tertiary levels. It takes place in settings organized by institutional authorities, planned and directed by

teachers approved by these authorities, and typically requires compulsory attendance until mid-adolescence.

Adult education includes a diverse array of further education programs, courses and workshops in many institutionally organized settings, from schools to workplaces and community centres, and it is typically undertaken voluntarily. Adult education is the most evident form of lifelong learning for adults past the initial cycle of schooling. People also continually engage in informal learning activities to acquire understanding, knowledge or skills outside of the curricula of institutions providing educational programs, courses or workshops.

Informal learning – which we undertake individually or collectively on our own, without externally-imposed criteria or the presence of an institutionally authorized instructor – is much more widespread among adults than either initial school attendance or further adult education.¹ As Allen Tough (1978) has observed, informal learning is the submerged part of the iceberg of adult learning activities. It is at least arguable that, for most adults, informal learning represents our most important form of learning for coping with our changing environment. Aside from considering initial formal schooling and further or adult education, no account of a person's "lifelong learning" is complete without considering their intentional informal learning activities.

In sum, both work and learning are more extensive and complex phenomena than is often implied in discussions of employment and education. A narrow focus on relations between paid employment and organized education ignores significant interrelations between these and other dimensions of work and learning. It is increasingly recognized that early informal childhood socialization is highly influential in determining success in formal schooling. There is far less appreciation of the fact that continued informal learning is vitally important for success in paid workplaces. Recent studies confirm that most job-related learning is done informally (see Betcherman et al, 1997; Center for Workforce Development, 1998). The vast majority of workers manage to become at least adequately qualified for their jobs through a combination of initial schooling, further adult education and informal learning. Even so, the dominant discourse about a pressing need for creation of "learning organizations" ignores these realities of interaction between organized education, informal learning and job performance, presuming instead that the central challenge for improved enterprise performance is for workers to become more active and motivated learners. Also, many valuable transfers of knowledge and skill between these three basic spheres of learning and among the three spheres of work are similarly unrecognized or discouraged by actual workplace organization (see Livingstone, 1999a).

Another limitation in this research about paid work and education is that most focuses too narrowly on immediate payoffs to employers. From a short-term management perspective, virtually the only relevant learning for employees is job training that enhances the company's productivity or profitability. From this vantage point, much learning that workers gain both on and off the job is effectively non-existent. However, more qualitative studies have discovered, for example, that many assembly line workers develop informal learning networks to learn how to use personal computers. Some become competent computer programmers, in fact, although they have no employer encouragement or immediate opportunities to use these skills in their jobs (Sawchuk, 1996). Other Canadian surveys have found that corporate executives, managers and professional employees were far more likely to be able to apply their general work-related learning in their jobs than industrial and service workers, whose general knowledge is often regarded as irrelevant to enhancing current job performance (Livingstone, 1997a). What workers learn informally on and off the job is at least potentially applicable both in jobs redesigned to use

workers' growing repertoire of skills more fully, and in other socially useful and fulfilling household and community activities. The important point here that we need to find out how relevant this more general and informal knowledge is, rather than continuing to ignore it.

Research on work and learning requires more inclusive conceptions that will permit recognizing all substantial spheres of work and learning, and their multiple interrelations. This broader perspective must reflect and respect the experiences and needs of all groups of workers. With this broad conceptual framework and attempt at a more open standpoint we conducted the First Canadian Survey of Informal Learning Practices (NALL, 1999), which provides much of the evidence for this report. We harbour no illusions that such an exploratory survey could uncover the deeper levels of either individual or collective knowledge gained in informal learning practices. But after carefully reviewing the relevant research literature, our aim is to generate useful profiles of the basic patterns of intentional informal learning, and to link them more fully than most prior studies with organized forms of schooling and adult education and the different forms of work. Our aim is to thereby contribute to a more nuanced appreciation of the multiple dimensions and relationships of the both work and learning continua.

Key Questions

Most theorizing about work and learning has been limited to trying to explain relations between paid employment and educational participation, while ignoring unpaid work and informal learning. These theories may be classified as supply side, demand side and interactive theories. *Supply side* perspectives, such as human capital theory, assume that investment in education necessarily results in increased economic growth. (Becker, 1964). *Demand side* perspectives see the labour force as reactive to dominant workplace trends, rather than as influencing them through its learning and other activities. Variants include advocates of a "knowledge-based economy" who assume that the operation of modern information-based production systems now requires workers with substantially more complex analytic and design skills, and that education systems must increasingly respond to the need to produce such knowledge workers (Marshall and Tucker, 1994). Conversely, the prophets of the degradation of paid work argue that inherent tendencies within modern production systems are leading either to a profound deskilling of job requirements or widespread automation, with a consequent proliferation of underemployment and unemployment (Braverman, 1974; Rifkin, 1995). *Interactive supply-demand theories* emphasize the relational character of education and job connections in terms of the bargaining processes between employers and employees. These include screening theories (Stiglitz, 1975), credential society theories (Collins, 1979) and more inclusive education-employment relations theories, which can also be applied to unpaid work and informal learning (see Livingstone, 1999a).

Whatever interpretive perspectives we may prefer, our major objective should be to empirically assess actual relations between learning and work. Currently prevalent approaches that simply assume either inevitable benefits from further investment in human capital and a lifelong learning culture or, on the other hand, pervasive demands for greater skills from a knowledge-based economy, will very likely be poor guides to social policy making. The main questions guiding this research are as follows:

past generation?

- How has participation in learning activities altered over the same period?
- How well matched are Canadians' employment statuses and their learning achievements?
- What are the most likely educational and economic reforms to enhance relations between work and learning in the Canadian labour force today?

Data Sources

This report relies primarily on data generated by the 1998 national survey of learning and work by the Research Network on New Approaches to Lifelong Learning (NALL), supplemented where possible by other recent national surveys findings on employment and adult education courses which also estimate the extent of unpaid household and community work. NALL is located at OISE/UT, and has been funded by the SSHRC to identify the extent of adult learning, the existence of social barriers to learning, and more effective means of linking learning with work. Its survey offers unique insights into the full array of learning and work activities among Canadian adults (see box).

While the NALL survey is the major source for most of this report's empirical analyses, these last also emanate from relevant data from other studies, including the Adult Education and Training Survey (AETS) which has been conducted periodically by Statistics Canada (1997a), and which provides comparable data on employment and adult education for 1991, 1993 and 1997, respectively. The 1996 Census also included useful questions on unpaid household work for the first time (Statistics Canada, 1998). In 1997, the National Survey of Giving, Volunteering and Participating expanded on an earlier 1987 survey on volunteering, providing the most inclusive profile yet on community volunteer work (Hall et al., 1998). Finally, the General Social Survey (GSS) measured Canadians' time use in 1986, 1992 and 1998, providing estimates of time spent in paid and unpaid work, organized education and other activities (General Social Survey, 1999). Taken together, these data sets begin to provide a fairly comprehensive picture of Canadian adults' work and learning activities.

The 1998 NALL survey of adults' current learning is this country's first large-scale survey, and the most extensive one anywhere, to attend to the full array of adults' learning activities, including not only schooling and adult education courses but informal learning that occurs outside organized education. A representative telephone survey of 1,562 Canadian adults over 18 years of age was conducted for NALL between June 6 and November 8, 1998 by the Institute for Social Research at York University. The NALL survey sample includes adults who speak English or French, reside in a private home (not old age/group home/penal or educational institutions) with a telephone. All provinces and households and individuals within households were given an equal chance of selection using random digit dialling. The average telephone interview time was 32 minutes. Efforts to maximize response rate included extensive call-backs at different times of day when necessary. 24% of the interviews were complete on the first call; 54% completed within 2 further call-backs; 76% completed within a total of 6 calls; 97% in 14 or less calls; the final 3% took between 14 and 28 calls. The response rate was 60% of eligible households, 64% if we exclude the households whose eligibility was not determined. The data presented in this report are weighted by known population characteristics of age, sex and educational attainment to ensure profiles that are representative for Canada as a whole.

The NALL interview schedule addressed all three basic types of both learning (formal school, adult or adult education, and informal learning) and work (employment, housework, and community volunteer work), but with a special focus on the diverse aspects of informal learning; a variety of social background factors were also addressed. This survey asked respondents to talk about learning from their own standpoints. The survey is therefore limited to *intentional* informal learning that respondents can distinguish for themselves from more incidental and tacit forms of learning they do beyond externally authorized curricula. Given both the subjective nature of self-reported informal learning and the uniqueness of the survey in Canada, the estimates of informal learning profiles presented in this report require further testing to ensure reliability. However, the interview design is based on a careful review of prior studies of informal learning, including extensive Canadian case studies (see Tough, 1979), and questions have been designed to address concerns about validity in earlier research on self-directed learning. (Those interested in the interview schedule or further details about the survey may visit the NALL website: www.nall.ca).

Computers and the "Information Age"

The last generation of the 20th century is increasingly seen as the onset of an "information age" no doubt due to the increasing proliferation of technologies that provide quicker and easier access to diverse forms of data, information and knowledge. This dissemination of information technologies through personal computers and the Internet has been extraordinary in recent years. While less than 20 percent of Canadian homes owned a computer in 1989 (Lowe, 1992, p. 83), by 1997 the proportion had jumped to 40 percent and then to 45 percent by the following year (Statistics Canada, December 13, 1999). It has been a mere decade since a publicly accessible electronic information exchange network, the Internet, was created – and yet Internet access from the home leapt from 17 percent in 1997 to 25 percent in 1998 alone (Statistics Canada, December 13, 1999). Less than 30 percent of Canadian households had at least one *regular* Internet user in 1997, but by late 1999 this figure had increased to about 42 percent, including home users and those who gained access from paid work sites, schools, libraries, homes of friends or Internet cafes (Statistics Canada, May 19, 2000). The proportion of Canadian adults with Internet access from home, employment, school or elsewhere increased from 55 percent in mid-1999 to 70 percent in mid-2000 (Angus Reid, 2000).

Most Canadian adults now probably have access to both home computers and the Internet, just as many prior information technologies – including motion pictures, radio and television – spread rapidly in advanced capitalist societies. The impact of new technologies on knowledge acquisition has typically been wildly exaggerated (see Cuban, 1986; Livingstone, 1997b), and there may already be a growing number of Internet dropouts (Katz and Aspden,

1998). But the combination of personal computers and the Internet provide a more interactive and dynamic mode of acquiring knowledge than any previous information technology. The vast majority of Internet users indicate that it has already had a significant impact on their lives, mostly by making them more knowledgeable by providing access to various information sources (Angus Reid, 2000).

The diffusion of home computers has been extremely uneven across economic groups. About three quarters of the households in the highest income quintile had computers in 1998, compared with less than 20 percent of those in the lowest quintile (Statistics Canada, December 13, 1999). This difference is the basis for the growing justifiable social concern about a "digital divide" among Canadians (Reddick, Boucher and Goseilliers, 2000). But the capacity to use computers and general access are much more widely distributed. Even in 1989, when less than a fifth of all households owned a computer, nearly half of the entire adult population was able to use a computer, and about a third had taken a computer course (Lowe, 1992, p. 71). Both the diffusion of home computers and the development of basic computer literacy have continued to increase rapidly (Angus Reid, 2000).

According to most indications, Canadians have continued to acquire computer skills to a greater extent than they have had opportunities to apply them in paid workplaces. GSS surveys indicate that, by 1989, around a third of the labour force was using computers for some tasks in paid workplaces, and by 1994 that proportion had increased to 48 percent (Lowe, 1996). But considerably more workers have acquired the knowledge to use computers than have had the opportunity to use them in their paid workplaces. According to the GSS, in 1989 – when 35 percent of Canadian workers were actually using computers in their jobs – 59 percent had the ability to perform work-related computer applications; by 1994, when 48 percent of all workers used computers in their jobs, computer literacy had increased to 68 percent of the employed workforce (Lowe, 2000, p. 75). By the same token, while 70 percent of adults now have some form of Internet access, net users are far more likely to say that they use it to acquire general knowledge, for entertainment, personal communications and financial transactions than to improve their job performance (Dickinson and Sciadas, 1999; Angus Reid, 2000). We will examine this apparent discrepancy between knowledge acquisition and use on the job more generally in Chapter 3, after more closely examining the actual distribution of Canadians' current paid and unpaid work and our work-related learning practices in the next two chapters.

CHAPTER ONE – PROFILES OF PAID AND UNPAID WORK

There is widespread agreement that the Canadian economy has undergone very significant changes in the past thirty or forty years. This includes five basic trends: (1) a shift from goods-producing jobs to service sector jobs and increased growth of managerial and knowledge-based professions and semi-professions; (2) greatly increased female labour force participation, such that most adult women are now in the labour force and most women with pre-school-age children are also in full-time employment; (3) an increasing proportion of temporary and part-time jobs, particularly involuntary part-time jobs with relatively low benefits or economic security compared to the post-WWII standard of a full-time long-term position with a given employer; (4) an increasing use of computer-based technologies in work processes, particularly for integration/control and processing/assembly functions, leading not only to the creation of new information management, programming and data processing jobs but to the elimination of many clerical occupations; and (5) in contrast to the traditional two-stage school-to-work model, many youths now combine school and work, either because they remain in school longer and need the employment income to afford it, or because they are returning to complete or upgrade educational credentials once they get out in the job market.²

All of these trends have undergone uneven rather than linear patterns in response to the intensity of enterprise competition, the supply and organizational strength of labour, and the availability of labour-saving work techniques. These long-established relationships continue to make capitalism far more dynamic and prolific than any prior mode of production, and animate the more specific changes that some analysts regard as a rapid transformation to a different kind of "knowledge-based economy." As noted in the Introduction, Canada has recently seen a rapid proliferation of information technology. Even so, this technology has not led to a radical shift in the organizing principles of industrial societies nor in the direction in which they have been moving, but rather only to a greater range and intensity of their applications (see Kumar, 1995; Livingstone, 1999a).

This chapter briefly reviews the evidence for the emergence of a "knowledge-based economy," and then documents aspects of work in Canada that have actually exhibited more substantial recent shifts – the distribution of paid employment as well as the distribution of unpaid housework and community volunteer work.

Gradual Emergence of a Knowledge-Based Economy

Many recent observers have celebrated the arrival of a fundamentally new "post-industrial" or "knowledge-based economy" (KBE). These terms are now used quite broadly in conjunction with the diffusion of information technologies, although their original advocates specifically assumed the centrality of occupations that require advanced cognitive skills in management and technical design work, as well as a general imperative to upgrade the skills needed for all types of employment (Bell, 1973; Reich, 1991). The direct evidence presented to demonstrate this version of KBE is usually limited to showing an increasing prevalence of service sectors over primary extractive and secondary manufacturing industries, as well as allusions to the rapid growth of specific occupations such as computer analysis. While its advocates do not identify

precise thresholds that signal the presence of KBE, the suggestion is that of a general prevalence of knowledge workers engaged in complex planning and design work.

A recent census-based analysis of occupational distributions over the 1971-1996 period (Lavoie and Roy, 1998) provides one of the most thorough estimates to date of the actual extent of movement toward KBE. Significant changes have occurred over this period in both the absolute numbers of Canadians in each occupational category, primarily because of population growth, and in the redistribution of jobs from goods production to services, data processing and especially management and knowledge work. The proportion of people in management occupations has nearly quadrupled to 10 percent of the labour force. People in knowledge-based occupations that mainly involve the generation of ideas or the provision of expert opinion – such as scientists, engineers, and artists – remain a small proportion of the entire employment picture, while most of the Canadian labour force is engaged in jobs that require fairly routinized transmission of data, processing of goods or provision of personal services.

The rate of change in the skill requirements of Canadian jobs has been extensively examined in an analysis of census data on occupational composition for the 1971-91 period (Leckie, 1996). Leckie found a general trend to gradual skill upgrading during this period. This analysis also explored measures of the general educational development required for jobs, the length of specific vocational preparation needed to perform a job adequately, and the levels of cognitive complexity, task diversity and responsibility in job descriptions, and consistently found gradually declining proportions of the lowest skilled jobs and comparable increases in the highest skilled jobs – resulting in net skill increases of around 10 percent over this entire 20-year period. Other Canadian and international analyses based on large-scale surveys for the post-WWII era (see Livingstone, 1999a, for detailed reviews) generally confirm this pattern of gradual skill upgrading. The most recent thorough empirical assessments of skill changes in the U.S. – the original source of claims about the shift to a KBE – also report a gradual increase in job skill requirements, in the post WWII period and in very recent times (Barton, 2000; Handel, 2000).

Nevertheless, recent changes in employment conditions have been exceptionally disruptive and challenging for those currently in the Canadian labour force. While the rapid introduction of information technology in paid workplaces may not have led to very rapid aggregate increases in required skill levels, it has been associated with extensive modifications of job types and restructuring of job tasks (see Advisory Committee on the Changing Workplace, 1997; Betcherman and Lowe, 1997; Statistics Canada, 1998). In the remainder of this chapter, I will provide aggregate profiles of the basic employment patterns and unpaid work activities of Canadians in what is loosely called the emerging “information age.”

Current Employment Statuses

The most basic way to examine people's involvement in work is to consider the amount of time they spend doing it. Paid employment is clearly the form of work that most people are “preoccupied” with in capitalist societies. Employment statuses also strongly influence how we spend the rest of our time outside paid employment. Recent estimates of the current distribution of general employment statuses among Canadian adults, based on the amount of time people devote to employment, are summarized in Table 1.1. This includes those excluded from paid employment and those who combine employment with student statuses. The data from the 1997

AETS survey are more accurate due to a much larger sample size, but are supplemented by the NALL data, which provide distinctions not available from the AETS survey among those who are not currently employed.³

According to both surveys, among numerous others, about 60 percent of the adult population is now engaged in some form of paid employment. This participation rate has been increasing throughout the post-WWII period since women have been drawn increasingly into paid work – which has more than offset declining male participation rates. While around two-thirds of men are now engaged in paid work, more than half of women are – including most women with pre-school aged children. According to the NALL survey, even most current women homemakers have previously had paid employment, and about a quarter are either looking for paid work or expect to find some within a year.

Along with these profound shifts away from exclusive unpaid homemaker roles, most other employment statuses have also become more fluid. The most important of these, for our purposes, is the *adult student*, that is, people beyond compulsory schooling age currently enrolled in credential-granting post-compulsory educational programs. Over 10 percent of all adults now have some form of student status, and most are youths trying to obtain college diplomas or university degrees. But increasingly mature students of virtually all ages are also combining studies with employment. Around half of current students over 18 actively combine either full or part-time employment with either full or part-time studies; even most students not currently employed are either looking for paid work or expect to have to do so before completing their studies. The transition from school to work is no longer a simple two-stage process.

Among the roughly 40 percent of the adult population who are not employed, about half are retired. This retired proportion is currently increasing for two reasons: declining birth rates and increasing longevity are producing an aging general population, and an increasing incidence of both voluntary and involuntary early retirements. Even retirement, however, is not necessarily a permanent status. In the NALL survey, over 10 percent of the currently retired indicate they expect to look for paid work in the next year.

Unemployment rates have fluctuated upward through the post-WWII era. Even in periods of relatively rapid job creation, the official unemployment rate now only declines slowly below 7 percent of the active labour force. Of course, many thousands of Canadians are glad that the official unemployment rate has declined slightly during the past few years. The most notable feature of this increased employment has been the move of people from unemployment and self-employment to wage and salaried jobs in private sector firms. The celebrated emergence of a new entrepreneurial economy of the self-employed in the 1990s is now revealed as a coping strategy in a very tight job market. But before celebrating a sustainable decline in unemployment, we must consider why official rates continue to be stuck at just under seven cent despite substantial recent job creation.

Table 1.1
Employment Statuses, Canadian Adults, 1997-98

EMPLOYMENT STATUS	1997 (%)	1998 (%)
<i>Employed FT</i>	46.4	45.7
<i>Employed PT</i>	8.5	7.6
<i>Employed FT, Student FT</i>	0.3	1.0
<i>Employed FT, Student PT</i>	1.3	3.0
<i>Employed PT, Student FT</i>	3.0	2.5
<i>Employed PT, Student PT</i>	0.4	1.6
<i>Total Employed</i>	59.9	61.4
<i>Nonemployed FT student</i>	5.3	1.8
<i>Nonemployed PT student</i>	0.5	0.7
<i>Active unemployed</i>	5.4	3.2
<i>Discouraged unemployed</i>	N/A	4.8
<i>Homemaker</i>	N/A	4.9
<i>Retired</i>	N/A	19.3
<i>Off work</i>	N/A	1.0
<i>Permanently disabled</i>	N/A	1.3
<i>Other</i>	28.9	1.6
<i>Total not employed</i>	40.1	38.6
TOTAL N	33410	1565

Sources: 1997: 1998 Adult Education and Training Survey special tabulation [17+population]/NALL (1999) [18+ population].

"Discouraged workers" who had previously given up actively pursuing jobs because their search experience told them none were available, have been moving back into the job market. Statistics Canada (1999, Sept 21) reports that such discouraged workers – defined quite narrowly as adults who wanted work but did not seek it, and who were waiting to start new jobs – constituted more than one percent of the eligible workforce beyond the 1998 official unemployment rate. The NALL survey is consistent with AETS and other Statistics Canada surveys in finding about 40 percent of Canadian adults in the non-employed population in 1998. But a much larger proportion of discouraged workers – considered more inclusively as adults who are not employed – identify themselves as having an occupation and are neither full-time homemakers, retired, permanently disabled or students. By this criterion, discouraged workers may make up more than four percent of the adult population, or more than seven percent of the currently employed labour force. It is very hard to estimate the level of interest in employment with any precision, so there may now be more people outside the officially recognized labour force wanting paid employment who are not actively looking for it than the number who are actively looking and, therefore, who are counted in official unemployment rates.

According to the NALL survey, the vast majority of the currently non-employed have had employment experience, and around a quarter of currently discouraged workers expect to actively look for work in the next year. Although discouraged worker status may well be the most rapidly changing of all in response to labour market cycles, the persistent marginalization of large numbers of potential workers from the job market should be a cause for concern. There is a very substantial continuing reserve army of labour ready to overcome their discouragement in various economic dependency statuses to actively seek employment if and when they perceive real job prospects.

Among those who are currently employed, about 80 percent are engaged full-time, or 30 hours or more per week. The proportions in part-time and temporary positions have grown quite rapidly. According to Table 1.1 and other recent labour force surveys, part-time employment now represents around 20 percent of all employment, whereas in 1976, the figure was 12 percent. Even more significantly, the rate of involuntary part-time employment – those who would prefer full-time jobs—*tripled* in this period to over a third of part-timers (Betcherman et al., 1998, p. 33). Similarly, the proportion of temporary jobs has increased rapidly in recent years. The proportion of casual, seasonal and contract jobs was less than 10 percent in 1989 according to the GSS survey (Gibb-Clark, 1997). According to the NALL survey, nearly 20 percent of all jobs are now regarded as temporary by employees, including around 40 percent of part-time and over 10 percent of full-time jobs. Many enterprises now sell the services of temporary workers to other employers. While most full-time and part-time workers continue to regard their jobs as “permanent,” any sense of permanency is far less secure than that of most of their parents.

Paid and Unpaid Work Time

The identification of work with paid employment, which prevailed in public discourse through most of the past century in industrial societies, has been seriously challenged as the division of household labour has become a more contested terrain between men and women, and as participation in unpaid work to sustain communities has become more a matter of voluntary choice than of universal necessity. It is increasingly evident that the time that adults of both sexes have to engage in learning activities should be understood in the context of their commitments to these unpaid labours as well as to paid employment.

Between 1961 and 1986, one-earner couples dropped extremely rapidly from 65 percent to 12 percent of all Canadian families (Myles, 1991). As women have entered the paid labour force in greater numbers and gained greater economic and political bargaining power, the unpaid domestic labour that was previously hidden in the household and devalued as “women’s work” has become more of an area of negotiation between household partners, and its economic value has begun to be recognized. For example, Statistics Canada (Jackson, 1994) estimated that the monetarized value of household work in 1992 was between 31 and 46 percent of Canada’s gross domestic product (GDP). Statistics Canada has been a world leader in measuring the volume and value of unpaid work done in both the home and the community (Macredie and Sewell, 1998). The best source is the General Social Survey (GSS), which has focussed on time use as its core content in 1986, 1992 and 1998. The 1998 GSS offers the most detailed measures of household work, including estimates of time spent in cooking/washing up, housekeeping, maintenance and repair, other household work, shopping for goods and services, and child care. Accurate trend analyses of unpaid work time still require refinement, but it is clear that, as women increasingly

entered paid work between 1986 and 1992, the time devoted to unpaid household work declined because women had less time available to do it, while men only marginally increased their "helping out" activities in the home (Fredericks, 1993; Status of Women Canada, 1997). Preliminary comparisons for the 1992-98 period, using GSS data, suggest that gender inequalities in unpaid housework time continue to decline slowly (Statistics Canada, 1999b).

Volunteer community work includes participating in community organizations (through such activities as supervising events, fundraising, serving on a board, or providing numerous other support services) as well as helping and supporting non-household relatives and other people on one's own (through driving to appointments, babysitting, finding information or assisting sick or elderly people). Perhaps partly because the discretionary time available for volunteer community work has become scarcer as women have devoted more time to paid work, unpaid community work has also increasingly been recognized by some researchers as vital, not only to the reproduction of community life but to societal economic success through the creation of "social capital" (see Putnam, 1991). The only roughly comparable trend data available from the 1987 and 1997 national surveys of volunteering suggest that during this period the proportion of Canadians participating in volunteer community work has increased, although the average amount of time devoted has declined. The more recent survey finds that around one third of Canadian adults now participate in community organizations, while around 70 percent are involved more generally in helping others (Hall et al, 1998).

The 1998 GSS survey provides the best recent comparative estimates of the time Canadians devote to paid work, household work and volunteer community work. The basic findings for men and women are summarized in Table 1.2.

Table 1.2

Paid Work, Household Work and Community Volunteer Work Time by Sex, Canada, 1998

TYPE OF WORK	Men (hrs/wk)	Women (hrs/wk)	Both (hrs/wk)
<i>Paid work</i>	28.7	17.5	23.1
<i>Household work</i>	16.8	28.7	22.4
<i>Volunteer work</i>	2.1	2.8	2.8
<i>Total work</i>	47.6	49.0	48.3
TOTAL N	4856	5893	10749

Sources: 1998 General Social Survey special tabulation (1998) [population 15+].

It is likely that substantial portions of unpaid work remain hidden in both the household and community because people continue to regard them as intrinsic parts of everyday life rather than "work" (Macredie and Sewell, 1998, p. 8). Even so, both men and women in Canada today probably put in an average of nearly 50 hours per week of paid and unpaid work. This is very close to current estimates in a U.S. time series survey, which found significant increases from 40

hours in 1973 to 50 hours in 1993, despite little change since then in self-reported hours of work (Harris Poll, 1999). Community volunteer work appears to be shared fairly equally between the sexes, averaging only a few hours per week over the entire population. Men still do most of the paid work and women do most of the unpaid housework. In spite of likely underestimates of unpaid work, the GSS survey generally finds that Canadian women work for a greater total of hours than their male counterparts: 7 percent more in 1986, 8 percent more in 1992, and 3 percent more in 1998 (Status of Women Canada, 1997; Statistics Canada 1999b). GSS estimates report that in 1986, women did 53 percent as much paid work as men and 216 percent as much unpaid work; in 1992, women did 60 percent as much paid work and 173 percent as much unpaid work; in 1998, women did 61 percent as much paid work and 167 percent as much unpaid work, (Status of Women Canada, 1997, p. 27; Statistics Canada, 1999b, p. 5). As women increase their participation in paid work, the sex difference in unpaid work has tended to decline largely because women are doing less of it under the demands of paid work.

Other insights about work time emerge from examining its distribution by different employment statuses. Table 1.3 summarizes the basic patterns according to the NALL survey. It should be noted that the NALL survey significantly *underestimates* housework time since it was only able to ask one question, while the GSS survey queried detailed items on different household tasks. The NALL survey thereby provides lower estimates of total work time than the GSS survey. But the general patterns in the NALL survey are very similar to those for comparable statuses in the GSS surveys, and the NALL survey permits finer distinctions among the non-employed and student groups. In all surveys, men and women employed full time consistently do more total work than any other general employment status, both averaging around 60 hours per week. In all other employment statuses, women clearly do more work than men because of their predominance in housework. In fact, according to the 1998 GSS survey's more accurate household work estimates, women homemakers with children at home also average nearly 60 hours per week in unpaid housework and volunteer activities (Statistics Canada, 1999b, p. 14). Men who are employed part-time do not do significantly more housework than men employed full-time.

Retired people continue to do a very substantial amount of unpaid work. But retired women, even without the constraints of paid employment, still do about twice as much housework as retired men. Unemployed men often undertake more housework, yet seldom as much as unemployed women or homemakers. The unemployed generally devote over 20 hours a week to unpaid work, and they continue to do at least as much community volunteer work as other people. There are major differences in total work time among the students groups, attributable both to paid work differences and a general tendency in students to do relatively little housework. Female and male students who are employed full-time do three to five times as much work as non-employed students, who presumably have much more discretionary time to devote to their studies. Excepting students, people in virtually all non-employed statuses tend to do more housework than those in full-time employment. The performance of a few hours of community volunteer work per week is common in virtually all employment statuses. Overall, most Canadian adults and especially those not employed full-time do a lot of unpaid work.

Table 1.3

Employment Status by Average Paid and Unpaid Work Time for Men and Women,
Canada, 1998

EMPLOYMENT STATUS/ SEX		Paid work (hrs/wk)	Household work (hrs/wk)	Community work (hrs/wk)	Total work (hrs/wk)
<i>Employed FT</i>	M	44.1	10.3	2.3	56.6
	F	38.4	16.3	2.3	57.1
<i>Employed PT</i>	M	22.0	10.3	4.2	36.4
	F	20.3	21.9	2.4	44.6
<i>Student employed FT</i>	M	43.6	7.1	3.1	53.8
	F	36.1	14.9	2.3	53.2
<i>Student employed PT</i>	M	18.0	7.0	4.6	29.6
	F	18.2	14.5	3.7	36.4
<i>Non-employed student</i>	M	0.0	7.2	2.7	9.9
	F	0.0	15.6	2.8	18.4
<i>Active unemployed</i>	M	0.0	16.2	2.2	18.5
	F	0.0	21.4	2.1	23.4
<i>Discouraged unemployed</i>	M	0.0	15.5	3.2	18.7
	F	0.0	24.4	4.4	28.7
<i>Homemaker*</i>	M				
	F	0.0	28.6	2.7	31.3
<i>Retired</i>	M	0.0	12.3	1.7	14.0
	F	0.0	21.1	2.9	24.0
<i>Other</i>	M	0.0	11.1	1.3	12.4
	F	0.0	13.6	1.7	15.3
<i>TOTAL</i>	M	29.5	10.7	2.4	42.6
	F	16.7	19.5	2.7	38.9

Source: NALL (1999). [18+ population] N = 1562.

*Number of cases too small for reliable male estimate

Employment Hours and Time Crunch

The dissemination of labour-saving technologies generates the possibility of reduced work time. Average employment hours declined very significantly over most of the past century. In Canadian manufacturing, the normal work week dropped from 60 hours in 1900 to around 40 hours in 1960, as working conditions negotiated by unions and employers were translated into legislated standards (Advisory Group on Working Time and the Distribution of Work, 1994, p. 13). Since the 1960s, however, there have been minimal reductions in the average paid work week. The weight of Canadian and international evidence now suggests that total paid and

unpaid work time has increased significantly over the past thirty years, as has the polarization of hours of paid work (see Schor, 1991). The origin of the "good jobs/bad jobs" structure of this polarization trend in the service sector was well documented a decade ago in an Economic Council of Canada (1990) report.

Table 1.4 summarizes how those employed under 20 hours a week and those employed over 50 hours per week each constituted about 12 percent of the active labour force in 1997. Both groups at these extreme ends have roughly doubled since the mid-1970s, although the proportion employed for 40 hours a week dropped from about half to around one third. About one fifth of the employed workforce now regularly does overtime work, most of it without extra pay (Theobald, 1997). At the same time, if we consider not just those in involuntary part-time employment (around 7 percent of the active labour force) but also the officially unemployed

Table 1.4
Usual Weekly Paid Work Hours, Canada, 1976-97

YEAR	< 20 hrs (%)	20-29 hrs (%)	30-39 hrs (%)	40 hrs (%)	41-49 hrs (%)	50+ hrs (%)
1976	7.5	4.6	25.0	49.7	7.1	6.2
1993	10.5	8.3	26.8	40.1	6.4	7.9
1997	12.8	8.9	27.6	34.7	6.9	12.0

Sources: 1976 and 1993: Advisory Group on Working Time and the Distribution of Work (1994, p. 17); 1997: Statistics Canada (1999a). All figures are drawn from Statistics Canada Labour Force Surveys.

(around 7 percent) in addition to discouraged workers – who may constitute a number that compares to the officially unemployed – there may be a similar number of potential participants who are available for more paid work but cannot obtain it. Thus, we have a paradox of overwork and not enough paid work increasing simultaneously.

Recent Canadian surveys on the employment time preferences of the employed labour force have generally found that most want to retain the same number of hours as they now have; secondly, that the fewer hours people work, the more hours they want. But considerable dispute remains about the work time preferences of the fully employed. The 1985 Survey on Work Reduction (Benimadhu, 1987), the 1995 Survey on Work Arrangements (Drolet and Morissette, 1997), and the 1998 General Social Survey have all found that full-time workers were far more likely to express a preference for more work with more pay than for fewer hours with less pay. However, when respondents to the 1985 survey were given the choice of fewer hours either for less pay or by foregoing a pay increase, the preference for less hours increased to about a third of the entire employed labour force. In the 1998 NALL survey, as Table 1.5 summarizes, when respondents had the general choice between being employed more, less or the same number of hours as they currently are, about a third of those employed also opt for less paid work time; only around 10 percent wanted more hours. While over a quarter of those employed less than 30 hours would like more employment hours, a majority of those working more than 40 hours say they would like less hours. Thus, there appears to be some scope for redistributing employment

hours from those working long hours to those working short hours, particularly between older and younger workers in similar fields (Drolet and Morissette, 1997, p.14).

Table 1.5

Usual Employment Hours by Preferred Hours, Employed Labour Force, 1998

EMPLOYMENT HOURS	More hours (%)	Same hours (%)	Less hours (%)
<i>1-19 hours</i>	30	59	11
<i>20-29 hours</i>	26	55	19
<i>30-39 hours</i>	14	59	28
<i>40 hours</i>	11	62	28
<i>41-49 hours</i>	5	49	46
<i>50+ hours</i>	7	38	55
TOTAL (%)	14	55	31

Source: NALL (1999). N=951.

The polarization of paid work time is reflected in a growing income gap between the very rich and the very poor (Yalnizyan, 1998). But there also appears to be a pervasive sentiment among the majority of middle-income earners that people must be willing to work longer hours to respond to falling real wages, to ensure job security and to keep up with a rising level of consumption of goods and services. Canadian families on average are spending more aggregate time in paid employment and earning less real income, but spending more of it (Daly, 2000). In reaction to these perceived trends, Canadians report growing feelings of a "time crunch" (Fredericks, 1995). Between 1992 and 1998, according to the GSS survey, there were significant increases in many indicators of time stress, and greater time stress was clearly associated with greater total work hours (Statistics Canada, 1999, November 9).

Time stress levels are highest among married men and women aged 25 to 44 who are employed full-time and have children at home – the people who have the highest total work times. In 1998, 85 percent of these married women and 79 percent of the married men felt that weekdays were too short to accomplish what they wanted, compared to 58 percent and 49 percent, respectively, in 1992 (Fredericks, 1995, p. 31). The highest levels of time stress continue to be expressed by married mothers with full-time employment who have children under 5 at home. As Statistics Canada (1999, November 9, p. 3) puts it, "families are losing in the 'struggle to juggle'." More generally, a growing majority of all Canadians say they are cutting back on their sleep to create more time, while they feel overworked and worry about not having enough time to spend with family and friends.

Other studies confirm that these time stresses are associated with increasing health problems in the employed workforce. A 1996 Hay Management Consultants survey found that over half of the Canadian labour force cited the pace of work as their most common workplace health problem; that health problems arising from job stress are much more likely than job-

related illnesses or injuries; and about a quarter of all workers reported stress, or mental or emotional health problems arising from their jobs (Dhooma, 1998). Research increasingly confirms the important role of stress in multiple diseases and disorders, and workers' compensation awards for job stress-based health problems grew rapidly in the 1990s. Canadians' life expectancies may now be among the world's highest (Statistics Canada, 2000, March 31). But many Canadians with full-time jobs are now endangering their quality of life through overwork, while others increasingly suffer similar health problems through the stresses associated with the indignities of having little or no paid work (cf. Karasek and Theorell, 1990).

In sum, while a knowledge-based economy is emerging gradually, there have been rapid changes in the distribution of both paid and unpaid work. The latter changes may prove to be more relevant for understanding Canadians' current efforts to acquire more skill and knowledge.

CHAPTER TWO – PROFILES OF ADULT LEARNING: MAPPING THE ICEBERG

Scholars have been welcoming the “learning society” since the explosion of enrolments in both post-compulsory schooling and further education courses in the 1960s (Hutchins, 1969; Husen, 1974). The human species’ primary means of coping with environmental change has always been to engage in increased learning activities. The increasing development and use of information technologies in all spheres of human life since 1960 may have encouraged greater knowledge acquisition throughout all age groups to deal with the continuing array of economic, political and cultural changes. This chapter documents that this growth in adult learning activities in Canada during this period has been quite extraordinary.

The definitions of adult learning used in policy circles have become more inclusive of informal learning during the past decade, as reflected in the OECD Education Ministers’ influential statement on “lifelong learning for all” (OECD, 1996) and subsequent OECD (1998, p. 8) documents declaring a ‘cradle to grave’ view of purposeful learning activities.

The evidence in this chapter suggests that adult participation in learning activities has increased much more rapidly than the emergence of a knowledge-based economy. Despite more inclusive rhetoric expressing that lifelong learning includes non-institutional settings, adult learning is still generally equated in policy analysis with organized education, while informal learning has been poorly documented and rarely researched – either in itself or in relation to adult participation in organized education. The following will survey the findings from recent Canadian research on informal learning, on formal schooling, adult education courses, and on the interrelations among all three forms of learning.

The main data sources for this analysis are the most recent Canadian surveys of participation in adult education and training programs during 1993 and 1997 (Statistics Canada, 1997a, 1999a) – henceforth termed the AETS surveys – and the survey of adult participation in both adult education and informal learning activities during 1998 by the research network for New Approaches to Lifelong Learning (NALL, 1999).⁴ The following sections will present the evidence, first for participation in organized forms of schooling and adult education, then for informal learning, and thirdly for the interrelations among these three forms of learning.

The Growth of Schooling and Adult Education

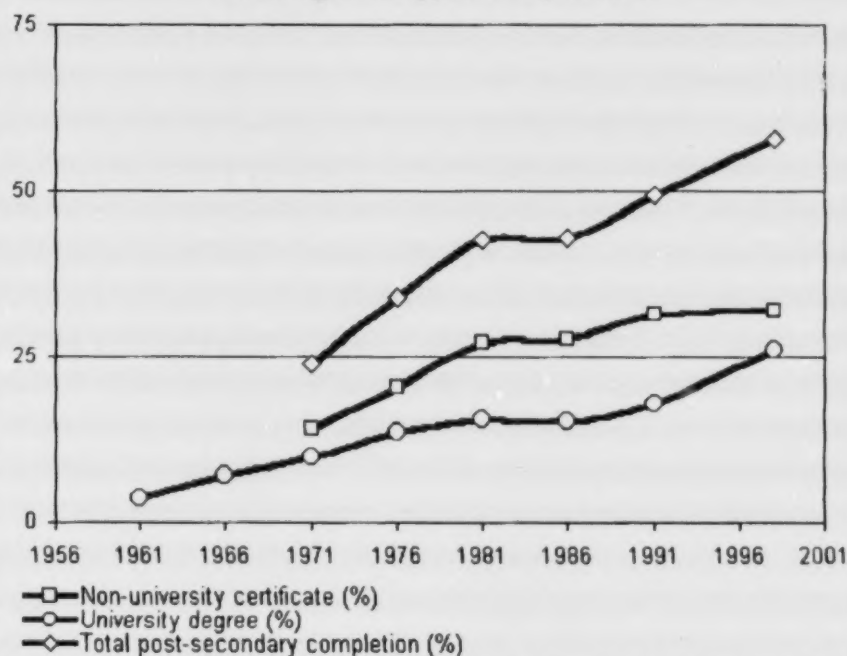
This section will review participation in formal schooling and adult education courses, primarily on the basis of comparable official statistics since 1960.

Participation in the post-secondary level of the initial cycle of formal schooling has expanded very rapidly over the past two generations, as Table 2.1 illustrates. The proportion of the age 25-to-29 cohort that had completed a university degree was about 4 percent in 1961. By 1990, the completion rate had quadrupled to 17 percent. The completion rate continued to grow rapidly up to 1998, when 26 percent of this age group had received degrees. The increase in other forms of post-secondary completion, including colleges and trade schools, may have been even more dramatic during the 1961-90 period; most comprehensive community colleges were created after 1960. While age-specific estimates for non-university certificates are not readily available prior to the 1970s, around 20 percent of the 25-to-29 cohort had completed some form of non-university certificate by 1976. This rate has continued to grow to 27 percent in 1981, and

it has since increased to 32 percent in 1998. So the overall rate of completion of all forms of post-secondary education by the 25-to-29 cohort grew from probably less than 10 percent to 58 percent during the 1961-98 period. From a small minority, the majority of young Canadians are now completing post-secondary schooling.

At the other extreme, the proportion with less than a high school diploma has dropped from over a third of the 25-to-29 cohort in 1961 to 20 percent in 1990; by 1998 this figure was only 13 percent (Dominion Bureau of Statistics, 1965; Statistics Canada, 2000, p.186). By 1996, Canada clearly led the advanced industrial world in the post-secondary educational attainment of its population, with 48 percent of its 25-to-64 population having achieved a post-secondary credential. The previous world leader, the United States, now trailed with 34 percent, while the average for all OECD countries was 23 percent (Statistics Canada, 2000, p. 24). This increase in Canadians' formal educational attainments has been extraordinary. Enrolment ratios in the late 1990s indicate that educational attainment among youth cohorts are continuing this increase. But there are several very important caveats.

**Table 2.1 Post-secondary Education Completion,
25-29 Age Group, Canada, 1961-98**



Sources: 1961: Census of Canada (1963) Table 102; 1966: Lagace (1968) Table C3; 1971-91: special tabulations from census data files; 1998: Statistics Canada (2000).
* Estimated from 1976 census.

First, Canada continues to trail most OECD countries in the provision of early childhood education. Less than half of all 3-to-5 year-olds attend pre-elementary programs, and only marginal increases have taken place over the past decade (Statistics Canada, 2000, p. 37). In light of the massive amount of research documenting the multiple benefits of early participation (e.g., McCain and Mustard, 1999), significant future increases in junior kindergarten programs may be anticipated.

Secondly, elementary-secondary level enrolment ratios are approaching universality, and most of those who leave when compulsory attendance ends at 16 now attempt to return to graduate as mature students. So future increases here are likely to be marginal, influenced primarily by variation in re-entry conditions for post-compulsory students (see McKuen, 1998).

Thirdly, post-secondary enrolment ratios include both full-time and part-time students, and part-time enrolments especially tend to go up in economic recessions and down in periods of job growth. Larger and larger proportions of each age cohort have enrolled in post-compulsory schooling, and people from each cohort have been staying longer and coming back more often for advanced credentials. Between 1980 and the early 1990s, both the participation of the 20-to-24 age cohort and that over 24 doubled (Betcherman et al, 1998b). Full-time college enrolment of 18-to-21 year-olds increased from 19 to 25 percent between 1987-88 and 1997-98, while such enrolment of 18-to-24 year-olds increased from 15 to 20 percent over the same period (Statistics Canada, 2000, pp. 42, 46). However, part-time enrolments have been falling since the end of the 1992-93 recession. So, overall, post-secondary participation rates of youth cohorts have shown little change in recent years.

Fourthly, previous general increases in post-secondary enrolment mask persistent and now increasing inequities of access by economic background. Youths from poorer economic origins have always been under-represented in post-secondary institutions. Average student debt loads have more than doubled during the past decade (Statistics Canada, 2000, p. 67), since tuition fees have undergone similar increases while average family income has remained the same in real dollar terms. Recent studies indicate that those from low socio-economic status backgrounds were significantly less likely to attend university in the late 1990s than their counterparts of a decade earlier (Livingstone and Stowe, 2001). Aggregate increases in formal educational attainment are not reducing *relative* educational inequalities by economic origin.

Adult education includes a wide variety of courses and workshops based on an organized curriculum and led by an institutionally-authorized instructor, with enrolment typically at the discretion of the student. This can include, for example, courses in job retraining or upgrading, second language training, courses to complete a diploma or degree program, and a wide diversity of general interest courses ranging from accounting processes to zoo-keeping. Few Canada-wide surveys have explored participation in adult education. Published reports on the few surveys usually have *excluded* adults over 16 who are still involved in their initial cycle of schooling. They include: adults taking non-credit courses for specific purposes at various locations including schools, paid workplaces and through electronic media; adults who have returned to school *part-time* to complete certification or upgrade through programs of study; adults who have returned to school *full-time if they are supported by their employer*; and initial cycle students taking *supplementary courses* (see Devereaux, 1985; Statistics Canada, 1997a, p. 10). These inclusions and exclusions appear increasingly arbitrary as the initial cycle of formal

schooling has extended further into adulthood and young adults have increasingly combined school completion with employment. The transitions between schooling and employment are now both more frequent and more complex (see Thomas, 1993). Many people combine both statuses and it is often unclear which one might be primary at any given time. As Table 1.2 documented, over 10 percent of the adult Canadian population were enrolled in certification-based formal education programs during the 1997-98 period, and around half of these adults were enrolled in these programs while also engaged in paid employment. The simplest solution is to count all forms of adult participation in organized educational programs.

As Table 2.2 summarizes, surveys have found that participation in adult education also underwent very rapid growth from 1960 to the early 1990s. In 1960, according to the first known government survey (Dominion Bureau of Statistics, 1963), only about 4 percent of all Canadians over 17 years of age were estimated to be enrolled in any sort of educational institution course. By the next survey, in the early 1980s, about 20 percent were enrolled annually. A decade later, the participation rate had grown to around 35 percent. So, in just over 30 years, adult educational participation appears to have undergone about a sevenfold increase. Whatever criteria are used to distinguish formal and adult education during this period, adult participation in all forms of education clearly grew very quickly. However, while international comparisons of adult education are more difficult because of the diversity and limited nature of available data, it appears that current general levels of participation in Canada may still be exceeded by those in the U.S. and various European countries (Statistics Canada, 1997a).

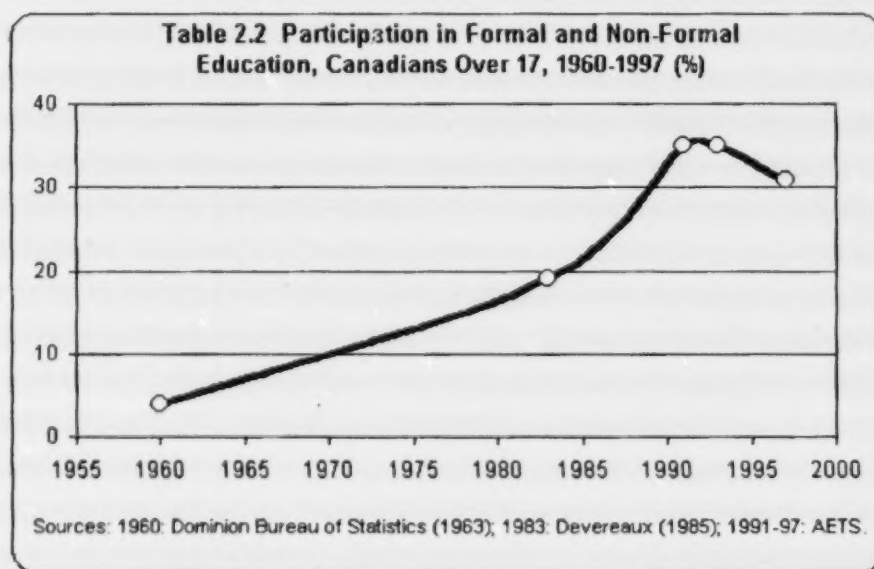


Table 2.2 also shows that there appears to have been at least a slight decline in the overall adult education participation rate between 1993 and 1997. Table 2.3 documents that most of this decline appears to be in personal and recreational courses and in elementary or high school diploma-completion programs. Another time series of surveys in Ontario indicates a similar

pattern of rapid growth in course participation continuing from the mid-1980s up to the early 1990s, followed by a recent decline (Livingstone, Hart and Davie, 1999).⁵ Recent analyses attribute such declines to increases in specific contextual barriers to educational participation (such as increasing costs), and point to a growth of self-employment which requires less formal learning, suggesting that individuals and employers are both increasingly well-disposed to opt for more flexible, less formal methods of skill development (Human Resources Development Canada, 2000; Livingstone, Raykov and Stowe, 2001). In Ontario in particular, more restrictive government funding and the related closure of various adult-upgrading programs have led to a sharp drop in enrolment (see McEwen, 1998).

The decline in adult education participation in the 1990s is a worrying finding in relation to both continuing work changes and apparent increases in participation rates in other OECD countries. But it may also be the case that prior Canadian government survey measures of adult education are not sufficiently inclusive to reflect all relevant organized adult education activities. The basic definition of adult education incorporates all learning activities beyond compulsory schooling offered with organized curricula by a designated instructor through any social institution. This includes instructor-led curricula of *short duration*, including workshops and lessons. The standard government survey questions have not mentioned short-duration activities, thereby probably encouraging an identification with organized *courses* and discouraging reporting of other adult education of short duration. The basic adult education question in the NALL 1998 survey was modelled on the standard AETS question, but it offered a more generic definition of adult education, encouraging the inclusion of workshops and lessons of short duration. That question was preceded by numerous questions about respondents' informal learning which may have stimulated identification of a wider array of organized educational activities.⁶ Not surprisingly, the NALL survey found a higher level of participation in adult education. About 44 percent of all Canadian adults, and about 56 percent of the employed labour force, were found to have participated in some form of organized courses in 1998 (see Livingstone, 1999b); these figures are around one third higher than the comparable 1997 AETS survey estimates of 31 percent of all adults and 39 percent of the employed labour force, respectively. A NALL follow-up question, addressed only to the employed labour force, about their involvement in a series of possible employment-related formal training courses, workshops or sessions of any duration, found that *66 percent of the currently employed* had participated in some sort of adult education activity of at least short duration over the past year (see Table 2.11 for a detailed summary); this is about two-thirds higher than the 1997 AETS estimate. It is unfortunate that such more inclusive measures are unavailable for earlier periods. Even so, these findings do suggest that adult education practices may be considerably more extensive in Canada than prior general course-based measures comprehend.

Table 2.3
Participation in Specific Programs and Courses, Canadians Over 17, 1991-97 (%)

	1991 (%)	1993 (%)	1997 (%)
PROGRAMS			
<i>School diploma</i>	4.3	4.5	3.5
<i>Apprenticeship</i>	0.7	0.7	1.1
<i>Trade diploma</i>	2.2	2.2	3.3
<i>College diploma</i>	3.2	3.8	3.6
<i>University degree</i>	4.5	4.9	4.7
<i>All programs</i>	14.3	15.1	13.9
COURSES			
<i>Job-related</i>	16.2	16.1	16.2
<i>Personal/recreation</i>	9.9	10.9	9
<i>All courses</i>	23	23.8	21.5
TOTAL	34.8	34.8	31.4
N	45328	41645	33410

Source: AETS special tabulations.

Several surveys also provide more detailed estimates of the time devoted to adult education courses. The 1983 government survey found that the average participant received about 60 hours of instruction per year (Devereaux, 1985, p. 43). The AETS surveys have found that the average number of hours per year devoted to course work by participants increased from 140 in 1991 to 209 in 1997, at the same time as the number of adult course participants declined (Human Resources Development Canada, 2000). The First International Adult Literacy Survey (IALS) found that in 1994 Canadian participants were spending an average of 317 hours per year in organized learning activities (Belanger and Valdivielso, 1997, p. 2). The NALL survey asked course participants a more general question about hours in a typical week devoted not only to time in class but to doing homework and course assignments. Respondents indicated spending an average of about 10 hours per week on course-related activities in 1997-98. This would amount to a maximum of about 500 hours per year if courses were taken throughout the year – which is rarely the case.

Despite comparability problems between these differing surveys, their results permit drawing two fairly definite conclusions about time devoted to adult education courses: First, the recent tendency for fewer adults to spend more time on adult education courses; this appears to reverse the more inclusive participatory trend of the entire post-1960 period, and should be carefully scrutinized in future studies. Secondly, if the number of hours devoted to adult education courses is averaged over the *entire* adult population, it now amounts to no more than 3 to 4 hours per week per person. These estimates will take on greater significance when we examine the incidence of informal learning among Canadian adults.

Whatever survey measures are used to estimate adult participation levels, it is clear that an extraordinary growth in institutional provision of educational services for Canadian adults took place between 1960 and the early 1990s. While the comparable evidence suggests an overall decline in general course participation during the mid-1990s, demand for further adult education remains very high. The 1997 AETS survey found that over 20 percent of Canadian adults, or nearly 5 million people, said they needed or wanted a course that they could not get during the reference year (Livingstone, 2001b). The NALL survey finds that fully half of all Canadian adults would like to take a course in the next few years (Livingstone, 1999b).

The data analysis presented in the rest of this report relies mainly on the NALL survey, because: (1) its measures of participation in adult education are more inclusive of all organized adult education activities, and slightly more recent than AETS; (2) it provides unique estimates of recent informal learning activities; and (3) it permits undertaking related analysis of the schooling, adult education and informal learning activities of Canadians. Wherever possible, supplementary analyses of schooling and adult education have also been conducted with AETS data.⁷

Canadians' Informal Learning Practices

Informal learning activities are even more difficult to estimate accurately than adult educational participation. Informal learning includes virtually any non-institutionalized learning in which adults choose to engage. Informal learning includes any activity involving the pursuit of understanding, knowledge or skills that happens beyond the curricula of institutions providing educational programs, courses or workshops. Informal learning may occur in any context beyond institutional curricula. The basic terms of informal learning (e.g., objectives, content, means and processes of acquisition, duration, evaluation of outcomes, applications) are determined by the individuals and groups that engage in it. Informal learning is undertaken on our own, either individually or collectively, without either externally-imposed criteria or the presence of an institutionally-authorized instructor. *Intentional informal learning* is distinguished from more *tacit informal learning*, as well as from everyday perceptions and *general socialization*, by peoples' own conscious identification of the activity as significant learning (see Eraut, 1999). The most important criterion that distinguishes intentional informal learning is the recognition of a new significant form of knowledge, understanding or skill acquired on one's own initiative. The actual number of hours that we allocate informally to gain explicit knowledge, skill or understanding may vary in terms of circumstances, the amount of concentration we can place on it, our actual learning capacities, and a number of other factors. To study informal learning empirically, most researchers have focused on those things that people can identify for themselves as actual learning projects or deliberate learning activities beyond educational institutions.

The research on informal learning in the post-WWII era depends heavily on the work of Malcolm Knowles (1970). Knowles basically argued that every individual is involved in continual learning activities, and that these activities or projects, which are beyond the realm of institutional control, are integral to the constituting of society. This perspective inspired the empirical research on "self-directed learning projects" initiated by Allen Tough (1971, 1978, 1979). This research began in the late 1960s and carried on fairly intensively through the 1970s with a number of studies. Much of the early research was done in Canada, starting with graduate

students at OISE who did case studies with various small groups. Large numbers of case studies have now been done to document the self-directed learning activities in which people generally engage (see Adams et al, 1999). Several U.S. surveys of informal learning were conducted, including a 1976 national survey (Penland, 1977; see Livingstone, 1999a, pp. 33-51). At least one national Canadian survey has addressed the content of adults' self-directed learning about social issues (Thomas et al., 1982). The cumulative findings in Canada and internationally in the 1970s were that in the vast majority of social and demographic groups the basic amount of time that people were spending on intentional informal learning projects showed very similar distributions. The average number of hours devoted to informal learning of this intentional, recognized sort was generally estimated to be around 10 hours a week or 500 hours a year (Tough 1978).

This early empirical research on informal learning was criticized for several possible limitations, including tendencies to individualistic, middle class, and leading question biases (see Brookfield, 1981; Livingstone, 1999a,b). But these early studies do provide a very useful starting point for further research. We should now be able to generate profiles of the incidence of intentional informal learning, and examine their associations with organized forms of education more reliably than most prior studies. At any rate, an adequate assessment of the extent of lifelong learning, and especially the learning of adults beyond their initial cycle of schooling, certainly requires at least some approximation of informal learning.

The 1998 NALL survey of adults' current learning is the first large-scale survey in this country to estimate adults' informal learning. (For further information on the NALL research network and the full interview schedule, see the NALL website: www.nall.ca). We reviewed and borrowed from virtually all studies of informal learning that have been conducted previously (see Adams et al, 1999), and extensive pilot testing was also undertaken with dozens of individuals and groups. Our final interview schedule addresses: all three basic forms of learning, but with a special focus on the diverse aspects of intentional informal learning; all three forms of work; and a variety of social background factors. Readers should be under no illusion that a survey questionnaire is capable of uncovering the deeper levels of either individual or collective knowledge gained in informal learning practices. In addition, the accuracy of the NALL survey findings must be regarded as tentative until confirmed by further survey and case study research, which is now underway.⁸

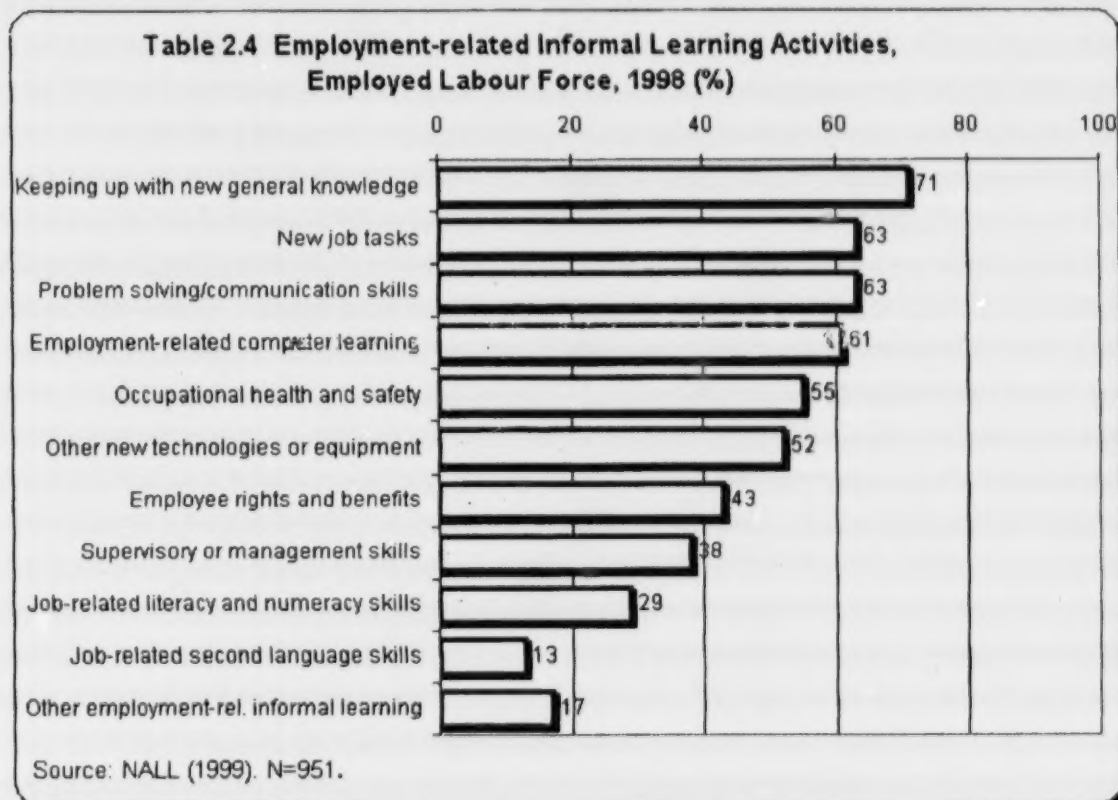
The NALL survey respondents were first given a definition of informal learning as including anything people do to gain knowledge, skill or understanding – from learning about their health or hobbies to household tasks or paid work, or anything else that interests them outside of organized courses. They were then asked to indicate their participation in four kinds of informal learning: employment related; community volunteer work related; household work related; and other general interest related. Respondents were asked about informal learning activities on several specific themes relating to each kind. The basic findings follow, with reference to prior studies where relevant for comparative purposes.⁹

Employment-related Informal Learning

Those in the current labour force (including over 60 percent employed and about 8 percent designated as unemployed) were first asked to identify any informal learning they had done during the past year related to their employment. The basic question was as follows:

First, let's talk about any informal learning activities outside of courses that have some connection with your current or possible future paid employment. This could have been any learning you did on your own or in groups with co-workers, that is any informal learning you consider to be related to your employment. I'm going to read you a list of some types of informal learning related to employment that people sometimes do outside of formal or organized courses.

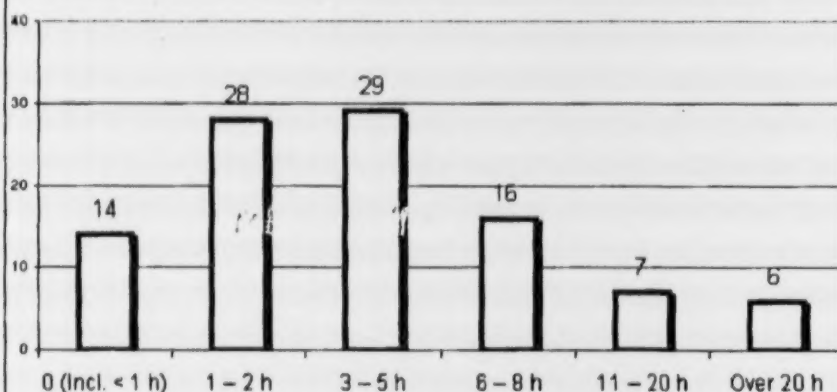
Table 2.4 summarizes these employment-related learning activities and the proportion of *employed* respondents who indicated participating in the acquisition of any of a variety of technical skills and practical working knowledge topics.



On average, currently employed respondents estimated spending about 6 hours a week in all of these informal learning activities related to their current or future employment during the past year. Table 2.5 summarizes the distribution of time estimates. Around 10 percent estimated spending less than an hour per week in employment-related informal learning activities. Very few employed people stated that they did no job-related informal learning, although some found it too difficult to provide a specific estimate; all of these responses were treated as zeros, thereby

contributing to a conservative estimate of average hours. The remainder were about equally divided into those who spent 1 to 2 hours, 3 to 5 hours, and 6 or more hours per week in job-related informal learning. Less than 10 percent estimated that they spent more than 20 hours per week, suggesting that even when respondents are given extensive opportunities to identify job-related informal learning, they can generally distinguish explicit informal learning from other activities, and recognize both the time constraints of multiple other activities in the 168-hour week, and are very unlikely to regard learning as a seamless web occupying most of their paid work time. While these estimates remain very approximate, it is almost certainly the case that a much greater proportion of currently employed Canadians are involved in job-related informal learning than in job-related training courses, and that even course participants spend more time in job-related informal learning than in course-based learning activities.

Table 2.5 Distribution of Employment-related Informal Learning Time, Employed Labour Force, 1998 (%)

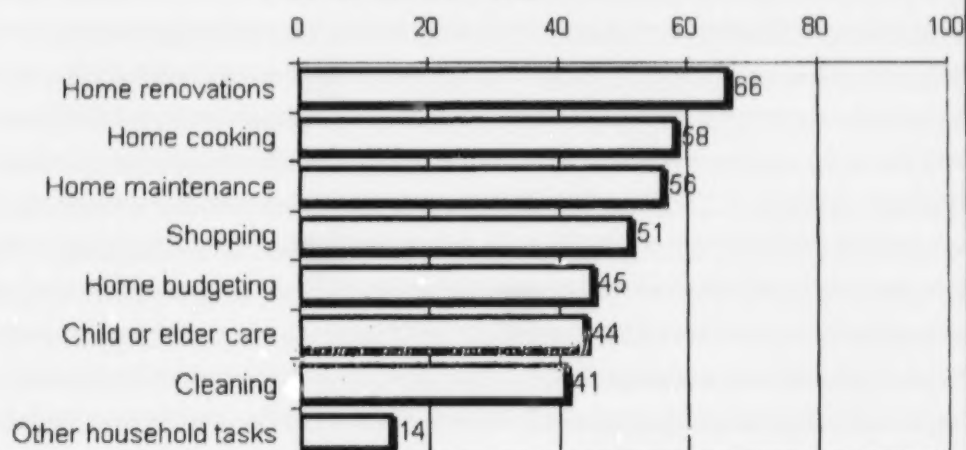


Source: NALL (1999). N=951.

Household Work-related Informal Learning

Those involved in household work over the past year (over 80%) averaged about 5 hours per week in informal learning related to their household work. Table 2.6 summarizes the household work-related learning activities, and the proportions who reported participating in them.

Table 2.6 Household Work-related Informal Learning Activities, All Participants, 1998 (%)



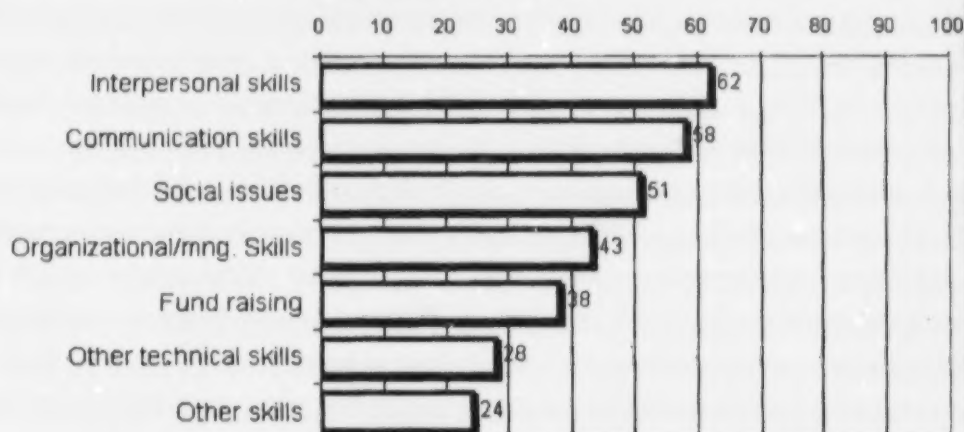
Source: NALL (1999) . N=1460.

Again, there are small numbers at the extremes, with around 10 percent indicating they devote less than an hour per week to housework-related informal learning and about 5 percent saying they spend more than 20 hours per week in such learning. Moreover, given the greater proportion of Canadians involved in housework than in paid employment, and the only slightly higher average hours devoted to informal learning related to employment, it appears that we now devote about as much aggregate time to informal learning related to housework as to paid employment.

Community Volunteer Work-related Informal Learning

Those involved in organized community work over past year (over 40%) devoted an average of about 4 hours a week to community-related informal learning. Table 2.7 summarizes the community-related informal learning activities and the proportions of community participants involved in them.

Table 2.7 Community Work-related Informal Learning Activities, All Participants, 1998 (%)



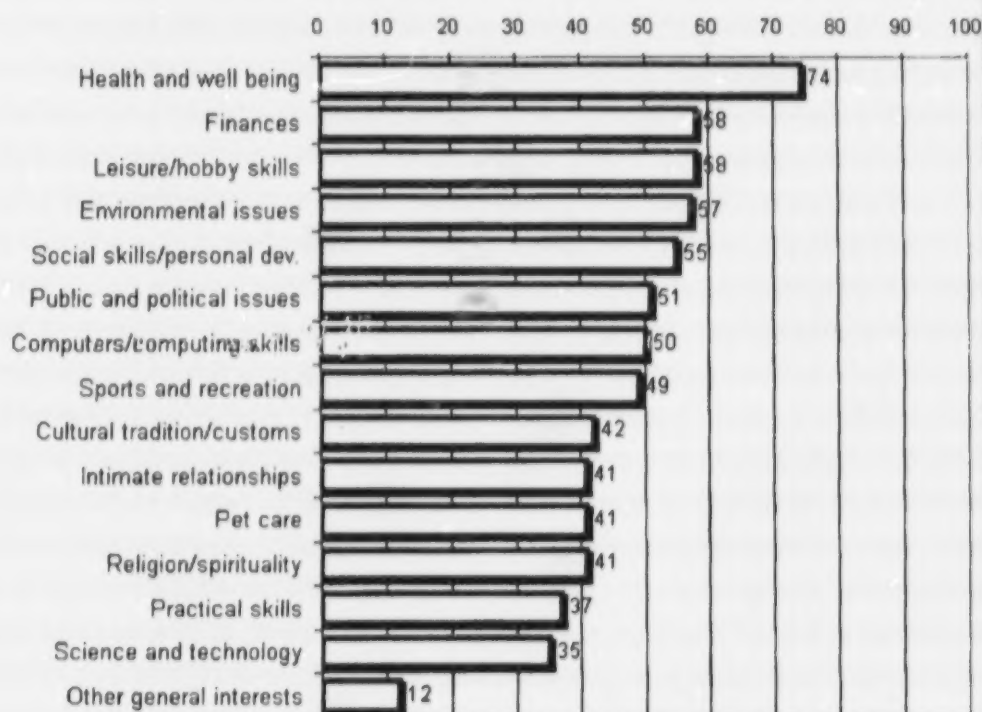
Source: NALL (1999). N=781.

The majority of those who participate in community work indicate that they devote no more than 2 hours per week to related informal learning activities, while less than 10 percent devote more than 10 hours per week. The relatively low levels of participation in community volunteer work and related informal learning are consistent with the fact that this is the most discretionary type of work in advanced industrial societies, and many people simply choose to opt out.

Other General Interest Informal Learning

Most people engage in some other types of informal learning related to their general interests and not directly connected to any of the three forms of work. Those who do so (around 90%) spend on average about 6 hours a week on these learning activities. Table 2.8 summarizes the basic sorts of general interest learning and the proportions engaging in these respective activities.

Table 2.8 General Interest Informal Learning Activities, All Participants, 1998 (%)



Source: NALL (1999). N=1332.

Around a third of respondents spend an hour or less per week in informal learning related to all of these general interests. The majority spend no more than three hours, while less than 10 percent devote more than 10 hours a week to such general interest learning. While there is evidently very wide participation in informal learning related to diverse interests, the incidence of work-related informal learning appears to be considerably greater – if learning related to both paid and unpaid work is included.

Total Involvement in Informal Learning

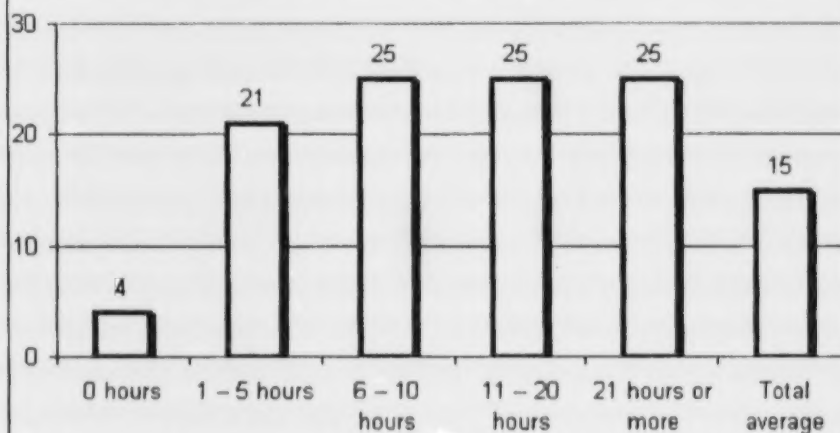
Nearly all Canadian adults (over 95%) are involved in some form of informal learning activities that they identify as significant. The survey provides estimates of the amount of time that all Canadians, including those who say they do no informal learning at all, are spending in all four areas (employment, community, household, and general interest). The average number of hours devoted to informal learning activities by all Canadian adults over the reference year was around 15 hours per week. Canadian adults therefore appear to be spending vastly more time in intentional informal learning activities than in organized education courses, which involve an average of considerably less than 4 hours per week if we include the entire population.

It is important to recognize here that this average estimate emanates from a survey devoted primarily to identifying the existence of intentional informal learning on multiple topics in several spheres of life activities. Virtually all prior empirical studies of informal learning found considerable initial reluctance among respondents to identify their learning outside educational institutions as legitimate learning.¹⁰ It is only when people had an opportunity to reflect on actual learning practices in the context of their daily lives that much intentional informal learning was recognized as such by the learners themselves. Intentional informal learning activities often also occur in combination with other social activities. While this makes time estimates more difficult and less exact, it is not a sufficient basis to either devalue or ignore informal learning processes.

The NALL survey estimate of 15 hours per week in 1998 has also been replicated by a 1998 Ontario general population survey (see Livingstone, Hart and Davie, 1999, p. 69). Further studies will still be needed both to confirm these recent estimates and to track any trends. But it is at least fair to say that, when Canadian adults have been given the opportunity to reflect on their informal learning practices along the topical lines summarized above, the average estimated time devoted to informal learning has consistently been found to significantly exceed the time that they devote to organized educational activities and to constitute a significant portion of their waking time.

Table 2.9 illustrates that the average figure in the NALL survey masks considerable variation in the total amount of informal learning that Canadian adults say they are doing. Less than 5 percent insist that they are either doing no informal learning, doing less than an hour per week, or are unable to offer a specific estimate. About equal proportions indicate being engaged in 1 to 5 hours, 6 to 10 hours, 11 to 20 hours, and over 20 hours per week of total informal learning activity. Put another way, about three-quarters of Canadian adults now say they are spending 6 hours or more each week in some kind of intentional informal learning activities, most of it related to paid or unpaid work.

Table 2.9 Distribution of Total Weekly Hours of Informal Learning, All Adults, 1998 (%)



Source: NALL (1999). N = 1565.

As previously discussed, roughly comparable empirical studies from the 1970s suggest that North Americans spent an average of roughly 10 hours a week in informal learning activities (see Tough, 1978; Penlanó, 1977). The Ontario survey referred to above was administered in both 1996 and 1998, and it found that the average hours of self-reported informal learning increased between those years from over 12 hours to around 15 hours (Livingstone, Hart and Davie, 1999, p. 69). So the few estimates that are available report an incidence of adult informal learning that may have increased somewhat since the 1970s, as well as during the mid-1990s, in spite of work-related time pressures. Other comparable surveys are much needed.

When we asked which of these learning activities are *most important* to Canadians in the respective spheres of activity, the most common responses were about computer skills related to employment, home renovations and household cooking skills, communications skills through community volunteer work, and general interest learning about health issues. Clearly, the overwhelming majority of Canadian adults now regularly spend substantial amounts of time in these pursuits, and they recognize this intentional informal learning as a significant aspect of their daily lives.

Relations Between Schooling, Adult Education and Informal Learning

An overall profile of Canadian adults' current participation in adult education and informal learning activities by their levels of formal educational attainment appears in Table 2.10. Schooling and adult education continue to be mutually reinforcing: the more schooling people have obtained, the more likely they were to participate in continuing education courses. Excluding students still in the initial schooling cycle, the correlation between schooling and participation in non-formal courses in this survey is significant statistically (Pearson correlation .30, $p < .01$, $n = 1371$). This relationship has been widely documented by adult education

researchers (see Cross, 1981; Devereaux, 1985; Courtney, 1992; Livingstone, Hart and Davie, 1999). The major gap is now between school dropouts and the rest. Most of those who have completed high school or higher levels of schooling took some form of adult education during the past year, while less than 20 percent of school dropouts did so; the higher the level of school attainment, the more likely they were to participate. A similar pattern occurs for plans to take more education in the future, with only about a quarter of school dropouts planning to take future education. While both school attainments and adult education made very impressive aggregate gains in recent generations, participation in adult education still tends to reproduce prior differences in educational attainments and to increase the relative gap in educational activities between those with school credentials and those without any.

Table 2.10
Participation in Adult education and Informal Learning by Formal Schooling Educational Attainment, All Adults, 1998

SCHOOLING	<i>Taken adult education course or workshop past year</i> (%)	<i>Plan to take course</i> (%)	<i>Informal learning</i> (%)	<i>Informal learning</i> (Hrs/week)
<i>No diploma</i>	18	28	89	16
<i>High school diploma</i>	52	46	98	15
<i>Community college</i>	58	62	98	15
<i>University degree</i>	67	70	98	14
TOTAL (%)	44	50	96	15

Source: NALL (1999). N=1565.

As Table 2.10 also shows, however, no clear association exists between participation in either form of organized education and participation in informal learning. Nearly everybody participates in some form of intentional self-reported informal learning, regardless of their education. Both the statistical correlation between schooling attained and informal learning for all respondents ($r=.02$, $p>.10$, $n=1549$) and that between non-formal participation and informal learning for those beyond the initial schooling cycle ($r=.05$, $p>.10$, $n=1371$) are therefore not significant.

School dropouts are as likely to spend a substantial amount of time in informal learning activities as those with higher levels of education. School dropouts now spend an average of about 16 hours per week in various learning projects outside of educational programs, at least as much time as university graduates. Three important implications of this finding should be noted immediately: First, adults with little formal schooling generally continue to be interested in learning activities and are sufficiently motivated to devote substantial amounts of their

discretionary time to such activities. Lack of motivation to learn per se is not a major factor in non-participation in adult education courses. Secondly, the failure of educational institutions and even most proponents of lifelong learning to effectively recognize the extensive prior informal learning of non-credentialed adults may represent one of the major surmountable barriers to greater and more equitable participation in advanced education programs. Thirdly and most importantly, Canadian adults are now generally active learners engaged in a considerable array of different institutional and informal learning activities; in spite of the expansion of educational institutions' adult programs, most of this activity takes place outside the walls of educational institutions.

There is a generally positive relationship between job-related, housework-related, community work-related, and general interest forms of informal learning. The more time people devote to any specific type of informal learning, the more likely they are to engage extensively in other spheres of informal learning (Pearson r scores range from .17 to .34, $p < .01$). While some of these interrelations are not very strong, they are consistently significant across all four spheres of informal learning.

A positive association also existed among those who took organized courses over the previous year between the amount of time devoted to such classes and time spent on both job-related and other spheres of informal learning (Pearson r scores range from .13 to .26, $p < .01$). But most people did not take courses, and the incidence of both job-related and total informal learning among them was no lesser than among those who did enrol. It therefore appears that the most extensive adult learners, as indicated by their time commitment to informal learning, are also more likely to devote more time to organized courses when they do enrol, although course enrolment per se does not necessarily stimulate greater informal learning activity.

Interest in informal learning in one sphere thus appears to stimulate interest in informal learning in others. Greater interest in informal learning also tends to be related to more extensive involvement in organized courses when and if people enrol in these courses. But greater interest in informal learning activities does not predict course enrolment. Many adults engage in extensive learning activities without ever taking an organized course.

Table 2.11 offers some further insight into the relative incidence of employment-related learning through organized courses and workshops and through informal means *among the employed labour force*. In all topic areas, employed adults are likelier to learn job-related material through informal means, and typically about twice as many were engaged in informal learning as were taking any courses over the previous year. Two-thirds of those in the employed labour force took some form of course or workshop, although nearly 90 percent were involved in some significant job-related informal learning during the previous year.

In terms of learning time, employed people spent about twice as much time on job-related informal learning as on course-based studies: an average of 6 hours versus 3 hours, averaged over the entire employed labour force. Whether they relied on courses, informal learning or both, most participants were involved in multiple learning projects. This is consistent with the finding from the earlier research on self-directed learning that reports how most informal learners were involved in five or more major learning projects annually (Tough, 1978).

Table 2.11

Participation in Employment-related Courses/Workshops and Informal Learning,
Employed Labour Force, 1998

TOPIC	Job-related courses/workshops(%)	Job-related informal learning (%)
<i>Keeping up with general knowledge in job/career</i>	29	71
<i>New job tasks</i>	24	63
<i>Problem solving/ communication skills</i>	35	63
<i>Employment-related computer learning</i>	31	61
<i>Occupational health and safety</i>	29	55
<i>Other new technologies or equipment</i>	33	52
<i>Employee rights and benefits</i>	20	43
<i>Supervisory or management skills</i>	14	38
<i>Job-related literacy and numeracy skills</i>	8	29
<i>Job-related second language skills</i>	7	13
<i>Other employment-related informal learning</i>	12	17
<i>Any participation</i>	66	86
<i>Average hrs/week</i>	3	6

Source: NALL (1999). N=951.

Any study of lifelong learning should attend to differences in the relations between different types of learning through the life course. The general age-based patterns in learning activities are summarized in Table 2.12. The youngest adults are most actively engaged in all forms of education and informal learning, as they navigate through major transformations in their lives. Thus, two-thirds of Canadian adults under 24 participated in a further education course or workshop in the previous year, compared to only 10 percent adults over 65. While prior studies of self-directed learning have not recognized it, those under 24 also indicate that they spend more time in informal learning than older adults: on average, over 20 hours per week. Entry into adulthood is probably the period of most intense and extensive new "organizing circumstances" (see Spear, 1988) in all spheres of most peoples' lives within advanced industrial societies, often including initial career choices, major household and residential community choices not governed by parental authority, as well as generally establishing their own life styles. Young adults are most likely to take further education courses to aid in these transitions, yet, furthermore, they are also far likelier to depend upon and value organized courses rather than their own independent informal efforts in their learning projects: nearly three-quarters indicate a preference for courses over informal learning. But clearly, younger adults do a great deal of informal learning while taking a lot of formal courses.

Most adults between their mid-twenties and mid-forties continue to rely quite strongly on further education courses, and prefer to do as much of their learning as possible through courses. Older people are much less reliant on course-based learning. After the mid-forties, both participation in courses and interest in taking future courses decline rapidly, such that only around one quarter of those over 55 have either taken a recent course or plan to do so. However,

this well-documented lower level of participation in adult education courses by older adults does *not* indicate a corresponding reduction of interest in learning itself. As Table 2.12 also shows, most adults over 45 generally prefer to do most of their learning on their own rather than through organized courses. More significantly, even the eldest age groups continue to show only a slightly lower incidence of informal learning than that shown by adults in their late twenties. Canadians over 65 indicate that they still spend an average of about 12 hours per week in various informal learning activities. Since the main reason for taking most adult education courses has been job-related, it stands to reason that course participation should drop as older people leave the labour force. The strong correlation between a decrease in future course plans and an increasing preference to learn on one's own through adult years may also reflect an accumulation of knowledge, which itself reduces the reliance on instruction by others as we grow older.

Table 2.12

Age Group by Current and Planned Courses, Preferred Mode of Learning and Incidence of Informal Learning, All Adults, 1998

AGE GROUP	Taken course past year (%)	Plan future course (%)	Prefer learning on own (%)	Informal Learning (hrs/week)
18-24	67	80	21	23
25-34	53	62	38	16
35-44	55	56	38	15
45-54	46	49	51	15
55-64	25	24	62	12
65+	10	12	64	12
TOTALS	44	50	44	15

Source: NALL (1999). N = 1565.

So aging is not significantly associated with a declining incidence of informal learning beyond the intense period of entry into adulthood. The stereotype that the active interests of older adults rapidly diminish as they approach and enter their retirement years is contradicted by both the NALL survey findings and other recent research, which suggest that their interests in learning tend to remain quite strong (see also Glendenning and Stuart-Hamilton, 1995). Excepting institutionalized people, who were excluded from the survey, adults over 65 spend nearly as much time on informal learning activities as middle-aged adults. Further course participation does decline rapidly from our mid-forties onward, but this is not primarily due to declining interest in learning projects but because course participation is increasingly replaced with our own independent informal learning efforts. The older we get, the likelier we are to rely on our prior learning experiences to guide our further learning. The notion that older people do not continue to be active learners should be discarded.

In sum, Canadians are now spending large and unprecedented amounts of time in three basic sorts of intentional learning: school attendance, adult education courses, and informal learning activities. Canadians' post-secondary educational attainments, after two generations of extraordinary growth, now lead the world. Participation in adult education appears to have grown equally quickly during this period, before declining in the mid-1990s. A very substantial unmet immediate demand for adult courses persists, and a majority of Canadian adults plan to take further education courses in the near future. Although there are few available measures of informal learning, the incidence of adults' intentional informal learning activities appears to have increased in recent years; in any case, it is far more extensive than participation in organized forms of education.

While both part-time school enrolments and overall participation rates in adult education courses have declined in the past few years, there is no indication of a decline in adults' interest in learning. Indeed, it is possible that recent increases in the incidence of informal learning may be partly a *compensatory* reaction to increased barriers to access to institutionalized forms of schooling and adult education in Canada.

The vast majority of Canadian adults are continually involved in a wide array of activities in pursuit of more knowledge, skills and understanding. Most of these learning activities occur informally beyond the recognition of institutional authorities. The central question is not whether we live in a learning society but whether educational institutions and paid workplaces can respond effectively to continuing increases in adult interest in and demand for knowledge.

CHAPTER THREE – PATTERNS OF WORKING AND LEARNING

This chapter will examine basic relations between work and learning in terms of the time that is devoted to each one. It will then consider patterns of association between employment statuses and occupational groups, on the one hand, and employment-related learning activities on the other. Finally, it examines the extent of mismatches between people's knowledge and skill levels and their specific employment conditions, as well as the effect of mismatches on their involvement in lifelong learning.

Relations of Work Time and Learning Time

It is reasonable to assume that the longer people spend in a particular type of work, the more time they are likely to devote to learning about it. But no prior study seems to have systematically explored this relationship. On the basis of the previously presented profiles of work time in paid employment, housework and community volunteer work, and time spent in adult learning activities, we will begin to assess the mentioned relationship more closely.

The relationship between paid work time and course participation appears to have two contrasting dimensions. As the following section shows, full-time workers are somewhat more likely to participate in adult education courses than part-time workers. However, an inverse relationship exists among course participants between work time and course-related learning time. According to the 1997 AETS survey, the longer hours course participants are employed, the less time they spent on job-related courses ($r = -.36$, $p < .0001$, $n = 20,071$). Of those job-related course participants who were employed less than 20 hours a week, over two-thirds spent over 160 hours on courses; the majority of full-time worker participants spent less than 40 hours on course-based studies. So, full-time workers are more likely to participate in courses but less likely than part-time workers to spend a lot of time on them. It should be noted, however, that while most course participants in both the NALL and AETS surveys indicated job-related motives as primary reasons for course participation, neither survey provides distinct estimates for the time devoted to job-related courses; as a result, these analyses are based on the total course times indicated by those who gave job-related reasons as a primary basis for their course participation. Further surveys that distinguish both job-related courses and job-related course time are required to confirm these relationships.

Our focus here will be on the non-course related results of the NALL survey, since this survey provides the most inclusive measures to date of both work time and informal learning, and because informal learning is both much more extensive and can be more freely chosen than adult education courses. Its data therefore provides a stronger test of the posited relation between work time and learning time. The basic patterns of association between the actual amounts of the respective types of work performed and the incidence of different types of informal learning are summarized in Table 3.1.¹¹

Statistical analysis confirms that among those engaged in each of the respective spheres of work, there is a significant positive association between hours of work and hours of sphere-specific informal learning. Furthermore, it appears that the greater discretion one has to engage in the respective types of work, the stronger the association between the hours devoted to such work and the related informal learning. Or, conversely, the more compulsion is involved in the

work, the less motivation or opportunity there may be to spend time learning more about it even if one has to spend a great deal of time doing this work.

Table 3.1

Associations between Hours of Work and Hours of Informal Learning, Canadian Adults, 1998

WORK HOURS		INFORMAL LEARNING			HOURS	
		<i>Paid work learning</i>	<i>Housework learning</i>	<i>Community learning</i>	<i>General interest learning</i>	<i>Total informal learning</i>
<i>Paid work</i>	Pearson r	.17*	.01	-.06	-.04	.05
	N	871	872	500	883	912
<i>Housework</i>	Pearson r	.12*	.33**	.01	.14*	.18**
	N	843	1284	730	1305	1357
<i>Community work</i>	Pearson r	.17*	.22**	.48**	.19**	.34**
	N	756	759	760	744	781
<i>Total work</i>	Pearson r	.17*	.00	.00	-.04	.05
	N	871	872	971	883	912

Pearson r correlation significance level: *=.01 **=.001

Source: NALL (1999).

Paid employment is the most compulsory sphere of work for the more than 60 percent of the adult population who do it. While most people want paid work, most households are compelled to send at least one wage earner, and increasingly two, out to the labour market, regardless of working conditions, in order to ensure their continuing reproduction. Employed people may generally feel they have relatively little say about the number of hours per week during which they actually perform paid work. But there are certainly great variations in the amount of discretion workers have in performing their jobs, and those who have greater job control tend both to work longer hours and to have greater chances to utilize their job-related learning skills. There is therefore a significant positive association between employment hours and job-related informal learning hours (Pearson $r=.17$, $p<.001$, $n=871$). The relationship remains stronger for men ($r=.21$, $p<.001$, $n=489$), than for women ($r=.10$, $p<.05$, $n=390$), probably because of wider variations in job control among men. More men than women are still employed in more secure full-time jobs with longer hours and with more learning opportunities. In any case, nearly all those who do less than 10 hours of weekly paid employment also do less than 3 hours of job-related informal learning. Increasing employment hours up to a 40 hour week tends to lead to marginal increases in informal learning; but nearly half of those who are employed over 50 hours a week also do more than 6 hours of employment-related informal learning.

Housework is a somewhat less compulsory sphere of work, at least in terms of the amount of time and the intensity of labour people devote to it. Over 90 percent of Canadians indicate that they do at least some housework every week. But more aspects of this work are discretionary, in that they can be more flexibly scheduled and distributed by household members than paid work. The general relationship between housework and informal learning times is therefore stronger ($r=.33$, $p<.001$, $n=1284$). In spite of the fact that women still do much more housework than men, the strength of this association is virtually identical for both sexes. The vast majority of those who do under 10 hours a week of housework spend only a few hours at best in related informal learning; among those who do more than 10 hours of housework, over 40 percent spend more than 6 hours a week in related informal learning.

Community organization work is the most discretionary form of work. Less than half of Canadian adults indicate choosing to work with community organizations last year. The general relationship between work and informal learning appears to be strongest in this sphere ($r=.48$, $p<.001$, $n=760$). Again, this association is as strong for men as for women. Most participants who give less than 3 hours a week to community volunteer work spend one hour or less on related informal learning; the majority of those who give more than 3 hours spend more than 3 hours on related informal learning.

In general then, the more one engages in any form of work, the more time tends to be devoted to related informal learning. The greater degree of discretionary control attributed to the particular form of work, the closer the relation between work time and learning time. Paid work time has a weak association with job-related informal learning time and no significant association with total informal learning time, while housework and community volunteer work have progressively stronger significant associations with both sphere-specific informal learning time and total informal learning time.

If adult learning is constrained in one sphere of work, it may well be expressed in another where the learner faces less compulsion. Alienated employees can devote themselves to household improvements or hobbies, and bored homemakers may become community activists, for example. But, as Table 3.1 shows, those who engage more fully in community work tend to be not only more involved community learners but also somewhat more active learners in housework, paid work and general interest activities as well. The tendency for the incidence of informal learning in one sphere to be positively associated with the incidence in other spheres, as noted in Chapter 2, and the finding here that the strongest associations involve the most voluntary sphere of work, suggests that people who are more active in more discretionary spheres of working life may also generally be more active informal learners. Some relevant studies focused on job autonomy will be discussed below, but further in-depth research including all spheres of work is required to assess this relationship more carefully.

Employment Status and Learning Practices

Beyond a general correlation between hours of work and learning time, it also seems reasonable to posit that the greater the engagement in employment, the more likely one will be to participate in employment-related learning activities. Table 3.2 summarizes participation rates in current learning activities for the basic categories of current involvement in employment. The learning activities include enrolment in any organized course, participation in any of a variety of specific employment-related courses and workshops, and participation in any of a variety of job-related

informal learning activities. The employment statuses include people who are employed full-time (30 or more hours per week), part-time (less than 30 hours per week), employed students (including all full-time/part-time combinations of employment and registered student statuses), the officially unemployed and discouraged workers (available and willing to take a job but not currently looking).

Table 3.2 shows that the highest participation rates in all areas of learning are among employed students who are intensively engaged in a transition between an organized program of studies and either mastering or preparing to enter new jobs. Not only are employed students all registered in current programs of study, but nearly all are also engaged in both job-related courses or workshops and other job-related informal learning activities. Among the currently employed without student status, those who have full-time jobs appear to be slightly more likely to participate in both courses in general and employment-related courses and informal learning. This finding is consistent with previous research, which found that full-time employees generally have a wider variety of opportunities and employer support to pursue further education (see Betcherman, Leckie and McMullen, 1998). The unemployed may have the greatest need for vocational retraining, but they are generally even less likely than part-time employees to be participating in any form of employment-related learning. Those currently looking for jobs have course participation rates of about half of full-time workers' rates, and they are also somewhat less likely to be involved in employment-related informal learning. Discouraged workers consistently have the lowest participation rates in courses generally, in job-related courses and in job-related informal learning activities. Those with full-time jobs are more than three times as likely as discouraged workers to be taking employment-related courses, and more than twice as likely to be involved in employment-related informal learning. These findings suggest a polarization of training opportunities that may be increasing the marginalization of the unemployed. But it is also important to note here that the incidence of job-related informal learning is significantly higher than job-related course participation among all employment statuses except employed students, and that the majority of the unemployed who are currently looking for jobs are also engaged in job-related informal learning.

Further details of learning practices by employment status are provided by Table 3.3, which summarizes the average hours devoted to courses, job-related informal learning, and total informal learning, including all those in each employment status. Overall, the active labour force is spending around 3 hours per week in course-related studies. The average course hours generally follow the same patterns by employment status as course participation rates in Table 3.2, with employed students devoting almost 10 hours per week, full-time workers spending about 3 hours, and both part-time workers and the officially unemployed spending less than 2 hours per week in courses. But the average for all discouraged workers is also around 3 hours per week, suggesting that the relatively small proportion of discouraged workers who can get into courses tend to devote more of their greater discretionary time to such studies than other non-students in the current labour force.

Table 3.2

Employment Status by Participation Rates in All Courses, Employment-related Courses/Workshops and Employment-related Informal Learning, Total Labour Force, 1998

EMPLOYMENT STATUS	All courses / workshops (%)	Job courses / workshops (%)	Job-related informal learning (%)
<i>Employed FT</i>	50	65	86
<i>Employed PT</i>	41	53	78
<i>Employed student</i>	100	90	94
<i>Active unemployed</i>	27	33	63
<i>Discouraged worker</i>	22	20	35
TOTAL	52	62	81

Source: NALL (1999). N=1046.

Table 3.3

Employment Status by Average Hours per Week of Course-based Education, Employment-related and Total Informal Learning, Total Labour Force, 1998

EMPLOYMENT STATUS	Course-based education Hours	Employment-related informal learning hours	Total informal learning hours
<i>Employed FT</i>	3	6	16
<i>Employed PT</i>	2	5	18
<i>Employed student</i>	10	6	15
<i>Active unemployed</i>	2	6	18
<i>Discouraged worker</i>	3	6	24
TOTAL	3	6	16

Source: NALL (1999). N=1046.

Those in virtually all employment statuses exhibit a similar average of around 6 hours per week of involvement in employment-related informal learning, which is significantly more time than they spend in *all* forms of course-related educational activities. Comparable averages for discouraged workers suggest, again, that the minority of discouraged workers who engage in employment-related informal learning do quite a lot of it.

Those in the current labour force average almost 16 hours of total informal learning per week, perhaps slightly more than the general population's average of 15 hours. There is little

difference, however, in participation rates by employment status. All employment statuses have participation rates of over 80 percent. It also appears that those who have less or no employment time may devote slightly more of their additional discretionary time to non-employment-related informal learning than full-time workers and employed students. Discouraged workers, who have the least commitment to either current jobs or the search for them, appear to have the highest total informal learning average of over 20 hours per week. *There is no indication here that discouraged workers become discouraged learners.*

The prevalence of greater reliance on informal learning than on course-based further education is also confirmed by an analysis of learning about specific employment-related topics. As Table 3.4 illustrates, on virtually all learning topics, that those in the current labour force are generally about twice as likely to rely on informal learning as on courses. Both the participation rates and discrepancies between course-based and informal learning for different employment statuses are similar to the general patterns found in Table 3.2. The selected topics – learning about computers; learning about team work, problem-solving and communication skills; and learning about occupational health and safety – are among the most popular employment-related choices for both course enrolment and informal learning. The finding that the unemployed have substantially lower course and informal learning participation rates in such strategically relevant topics for future employment as computer skills suggests a strong possibility of future exclusion, especially for currently discouraged workers.

Table 3.4

Employment Status by Participation in Employment-related Courses / Workshops and Informal Learning, Selected Topics, Total Labour Force, 1998

EMPLOYMENT STATUS	Computing course (%)	Computing informal (%)	Team work course (%)	Team work informal (%)	Health & safety course (%)	Health & safety informal (%)
<i>Employed FT</i>	30	60	31	63	28	57
<i>Employed PT</i>	22	55	18	53	15	45
<i>Employed student</i>	43	67	50	70	30	53
<i>Active unemployed</i>	14	22	12	28	6	20
<i>Discouraged worker</i>	4	20	5	18	12	24
TOTAL	28	56	29	58	25	51

Source: NALL (1999). N=1046.

Overall, however, it is clear that employment-related courses/workshops and informal learning are both major activities of the current labour force, and that informal employment-related learning is far more substantial than course-based studies for the currently employed, as well as for those in most other employment statuses. Furthermore, while marginalized employment statuses may serve to inhibit employment-related non-formal and informal learning,

even the most discouraged workers appear to continue to engage actively in informal learning related to unpaid work and other general interests. There is little evidence here that the "long arm of the job" has significantly diminished general intellectual vitality among those who do not have one (compare Tanner, Krahn and Hartnagel, 1995).

Occupational Groups and Learning Practices

Previous research does suggest, however, significant variations among employed workers' attitudes, cognitive skills and even their personalities according to the degree of self-direction or discretion allowed by their jobs (see Kohn and Schooler, 1983). A larger body of research documents the inter-generational reproduction of many occupational statuses through school selection processes, based on occupation and family-centred transmission of differential cultural codes (see Bourdieu, 1984). As a consequence of these selection biases, as well as the greater financial resources of their families to assist their advanced education, Canadian children with origins in the families of corporate executives, managers and professionals have continued to be much more likely to enter and graduate from institutions of higher education and get better jobs than children from the working classes (Curtis, Livingstone and Smaller, 1992). This reproduction cycle continues to operate in adult education course participation, so that those with lower school attainments who typically end up in lower occupational positions¹² persistently exhibit lower levels of participation in adult education courses (see Tuijnman, 1991). Current patterns in Canada are illustrated in Table 3.5.

Table 3.5
Formal Schooling, Current and Planned Adult Education Courses, and Total Informal Learning by Occupational Group, 1998

OCCUPATIONAL GROUP	<i>University degree (%)</i>	<i>Course last year (%)</i>	<i>Certain to take course next year (%)</i>	<i>Total informal learning (hrs/week)</i>
<i>Corporate executives*</i>	70	71	61	17
<i>Professionals</i>	40	67	61	15
<i>Managers</i>	34	73	64	13
<i>Small employers</i>	22	52	46	16
<i>Self-employed**</i>	15	52	32	14
<i>Supervisors</i>	12	63	47	14
<i>Service workers</i>	8	54	38	17
<i>Industrial workers</i>	4	33	38	17
TOTAL EMPLOYED	17	56	43	16

Source: NALL (1999). N=951.

* Data for Ontario from Livingstone, Hart and Davie (1999).

** Own-account workers without paid employees.

Corporate executives, managers and professionals are about 10 times as likely as industrial workers to have university degrees, and about twice as likely to have registered in a course at an educational institution in the past year. They are also much more likely to have definite plans to take future courses. Other general economic factors closely related to occupational group, especially income, also strongly predict adult education course participation rates; the highest income groups have been more than twice as likely as the lowest income groups to participate in adult courses (see Statistics Canada, 1997a, pp. 10-18). Those in the higher occupational and income groups continue to gain educational advantages (Livingstone, Raykov and Stowe, 2001).

However, no such disparities are evident in the general incidence of informal learning. As Table 3.5 also shows, corporate executives and industrial workers, as well as all other occupational groups, spend very similar average hours per week in all their informal learning activities. These occupational group patterns in the incidence of different types of adult learning activities suggest the existence of a much more egalitarian informal "learning society" hidden beneath the hierarchically-structured forms of organized schooling. The general incidence of informal learning among service workers and industrial workers, and also the unemployed, is at least as great as among more affluent and highly schooled occupational groups.

When we look at participation rates in the most broadly defined versions of employment-related adult education, including workshops of short duration at the workplace and in job-related informal learning activities, the differences between occupational groups and between rates of adult education and informal learning both diminish. As Table 3.6 shows, about two-thirds of the employed workforce has participated in some form of organized employment-related training sessions over the reference year. While managers, professionals and supervisors appear to have the highest course and workshop participation rates, smaller majorities in nearly all other occupational groups have also participated. The group differences in participation in job-related informal learning are much smaller, with over 80 percent of those in all occupational positions having been involved. Most people in all employed occupational groups are actively engaged in continuing learning related to their current and future employment.

Table 3.6

Occupational Group by Participation Rates in Job-related Courses/Workshops and Job-related Informal Learning, Employed Labour Force, 1998

<i>OCCUPATIONAL GROUP</i>	<i>Job-related courses/workshops (%)</i>	<i>Job-related informal learning (%)</i>
<i>Managers</i>	84	97
<i>Professionals</i>	73	92
<i>Supervisors</i>	72	87
<i>Service workers</i>	67	81
<i>Industrial workers</i>	56	83
<i>Small employers</i>	54	91
<i>Self-employed</i>	48	90
<i>TOTAL EMPLOYED</i>	66	86

Source: NALL (1999). N=951.

Occupational group differences according to intensity of participation in course-based and job-related informal learning by hours spent are summarized in Table 3.7. Once more we find a general prevalence of informal learning even when participation in *all* types of courses is compared with informal learning limited to employment issues. But there is also a suggestion here that the occupational groups that spend less time in course-based adult education tend to spend *more* time in job-related informal learning. The groups with the lowest average hours in general course participation – industrial workers, the self-employed without employees, and small employers – appear to have much higher averages in job-related informal learning time. The managers, supervisors, service workers and also professionals with the highest average general course times tend to devote roughly equivalent amounts of time to job-related informal learning. These findings all call for replication and more in-depth study, although there is some evidence here that those in occupational groups with relatively little access to organized courses are likelier than those in other groups to rely on informal learning activities to develop their job skills. Even so, whether or not employment-related informal learning is used to compensate for barriers to relevant course enrolment, the fact is that those in all employed occupational groups devote an average of around 10 hours per week to some combination of general course-based and employment-related informal learning activities.

Table 3.7

Occupational Group by Average Hours per Week of Course-based Education and Employment-related Informal Learning, Employed Labour Force, 1998

OCCUPATIONAL GROUP	Course-based education hours	Employment-related informal learning hours
Managers	6	5
Supervisors	5	5
Service workers	5	6
Professionals	4	5
Self-employed	2	7
Small employers	2	10
Industrial workers	2	9
TOTAL EMPLOYED	3	6

Source: NALL (1999). N=951.

While the "long arm of the job" certainly appears to influence continuing participation in adult education courses, the incidence of job-related learning activities in informal settings now seems to be more evenly distributed across the active labour force. Earlier longitudinal studies (see Kohn and Schooler, 1983, pp. 217-241) had found significant *reciprocal* effects between holding more complex, less supervised paid jobs and more intellectually demanding "leisure-time activities" (including hobbies and general interest reading). Further research documenting the complexity and the authority relations involved in household and community work as carefully as in job conditions is required to assess more thoroughly the current influence of the "long arm of the home" on job-related and other adult learning. But the analyses of learning and work presented here suggest that the incidence of adult informal learning may be more strongly associated with unpaid work than with paid work. In addition, extensive job-related informal learning is now being pursued not only by those with jobs of greater complexity and authority but also by those holding more routine, highly supervised jobs, as well as by the unemployed. These findings raise the prospect of significant mismatches between some workers' job-related knowledge and skills in the available jobs.

Education-Jobs Mismatches and Adult Learning

There are always some "mismatches" between employers' aggregate demand and requirements for employees on the one hand, and the aggregate supply and qualifications of job seekers on the other. The accelerating productivity of capitalist enterprises regularly throws workers into unemployment. In societies like Canada, with liberal democratic state regimes that acclaim the right to equal educational opportunity and with labour markets in which both employers and job seekers make mainly individual employment choices, the dominant historical tendency has been for the general supply of educationally-qualified job seekers to exceed the demand (e.g., Tandan,

1969; Statistics Canada, 1999c). There are also evident undersupply problems, the most notable in Canada being a chronic shortage of skilled tradespeople, as well as formal underqualification of some workers, particularly experienced, older employees with few incentives to upgrade their credentialed skills.

A thorough analysis of education-jobs gaps is beyond the scope of this report. This author's previous research and review of the relevant literature has led to identifying five basic factors in the correspondence between education and job requirements: structural unemployment; involuntary versus voluntary temporary employment; the credential gap; the performance gap; and subjective sense of education-job correspondence (Livingstone, 1999a).¹³ *Structural unemployment* and *involuntary reduced employment*, which were reviewed in Chapter 1, represent an underemployment of millions of Canadians' capabilities. The other three dimensions of mismatch among job holders should also be noted briefly. According to *self-assessments* in the NALL survey, about three-quarters of Canadian workers feel they are at least adequately qualified for their jobs; about 20 percent think they are overqualified, while less than 5 percent believe they are underqualified. In terms of the *credential gap*, about half of the labour force reports having matching credentials and job entry credential requirements; 30 percent now have educational credentials exceeding current entry requirements for their jobs by at least one credential level, while the remaining 15 percent appear to be underqualified, with lower educational credentials than now required for entry. The *performance gap* – which refers to the degree of correspondence between formal educational attainments and the general level of education actually required to perform the work – is estimated by general educational development (GED) scores produced by independent rating experts.¹⁴ According to this measure, about half of the currently employed Canadian labour force has job-related skills and knowledge that exceeds the actual performance requirements of their current jobs; for over a third attainments match performance requirements, while about 10 percent are underqualified for their current jobs.

So employed respondents' own subjective assessments generate the highest ratings of job requirements that match qualifications. Measures based on self-reported credentials required for entry versus credentials held, produce lower levels of matching. Measures based on independent educational equivalency performance requirements give the lowest levels of matching. Virtually all other recent surveys on any of these dimensions of the matching of employed workers' qualifications and job requirements have also found levels of underemployment to be substantial (i.e., 20 percent or greater) and to exceed levels of underqualification (e.g., Hay, 2000; Krahn and Lowe, 1997). Further analyses of the NALL survey and other data sources indicate that visible minorities and recent immigrants also tend to be more highly underemployed (see Expert Panel on Skills, 2000). Those in lower positions in terms of economic power are generally more likely to be underemployed.

The most relevant question about education-jobs gaps for this report is what their effects are on learning activities. In the 1960s, when underemployment was first identified as a social problem (see Livingstone, 1999a, pp. 52-55), some observers predicted that the spread of this condition would lead to widespread disaffection and rebellion among young people who could not get jobs corresponding to their educational investments, as well as a lack of interest in further employment-related learning efforts. However, as Table 3.8 summarizes, there is little support for this thesis in the currently employed Canadian labour force.

Table 3.8

Participation in Job-related Courses/Workshops and Job-related Informal Learning by Measures of Education-Job Match, Employed Labour Force, 1998

EDUCATION-JOB MATCH	<i>Type of learning</i>	<i>Underqualified</i>	<i>Matched</i>	<i>Underemployed</i>
		(%)	(%)	(%)
<i>Performance gap</i>	Job courses	71	64	69
	Informal learning	89	86	83
<i>Self-assessment</i>	Job courses	50	65	75
	Informal learning	81	84	91

Source: NALL (1999). N=951.

On both self-rated and independent measures of the education/job match, few differences in employment-related learning practices exist between those who are underemployed, those who are underqualified, and those who have qualifications that match their jobs. In all instances, most workers are engaged in both job-related courses/workshops and job-related informal learning activities. The lowest rates are for course participation among workers who subjectively assess themselves as underqualified. But this low rate probably reflects constraining circumstances more than disaffection with learning, since underqualified participants tend to spend more time than others in job-related course studies. Workers who are underemployed by any measure are just as likely to participate, both in job-related courses and in informal learning, as the underqualified and those with qualifications that match their jobs. In the previous chapter we also saw that part-time workers are only slightly less likely to participate in job-related learning than full-time workers, and that, while unemployed people – who typically have limited financial resources – are less likely to participate in courses of any kind, they continue to be very active informal learners.

Our brief look at relations between different types of paid/unpaid work and learning activities suggests that the more time we spend in our work and the more discretion we have in doing it, the more likely are we to devote time to relevant intentional learning. But the employment-related evidence reviewed here also indicates that *most* people in the active Canadian labour force are engaged in a wide array of continuing learning activities related to their current or prospective jobs. This pursuit of additional knowledge, skills and understanding related to employment applies across different employment statuses. Extensive engagement in job-related learning even applies to the considerable numbers who already have far more knowledge and skills than their jobs require, namely, the “underemployed.” The lack of immediate opportunities to use their new knowledge in available jobs does not appear to have dissuaded workers from continuing to seek ever more of it.

CONCLUSION – IMPLICATIONS FOR EDUCATIONAL AND ECONOMIC REFORM

The foregoing analyses have provided answers to most of our guiding questions:

- The number of knowledge workers has grown relatively rapidly, and the overall shift to a knowledge-based economy has been characterized by gradual increases in the overall skill requirements of the Canadian job structure since the 1960s. Pronounced shifts have also occurred in the divisions of paid and unpaid work between men and women and in the polarization of paid work time;
- A dramatic expansion of learning activities among Canadians took place over this same period, including at least a fivefold increase in both completion of post-secondary education by youth cohorts and participation in adult education courses, as well as increasing participation, by people of all ages and of virtually all social statuses, in many sorts of informal learning involving far more of people's time than organized courses do.
- Significant mismatch problems exist between Canadians' learning achievements and the skill requirements of available jobs. Underemployment (including structural unemployment, involuntary temporary employment, credential underemployment, performance underemployment, and subjective underemployment) is more common than underqualification.

Canadian authorities are rightly proud that the United Nations has designated this country as one of the best places to live in recent years. We have vast spaces and natural resources, relatively high levels of political democracy and tolerance for cultural diversity, the highest post-secondary educational attainments in the world, and widespread access to various information-age communication technologies. However, the mismatches between our potential labour force's learning achievements and the skill requirements of the Canadian job structure persist (Livingstone, 1999a), and social analysts warn of growing economic polarization (Yalnizyan, 1998, 2000). So, what are the most feasible educational and employment reforms to enhance relations between working and learning in the Canadian labour force today? And what should policy makers, researchers, teachers and others responsible for education and work programs be doing in this context?

Education Program Responses to Popular Demand for Learning

Some recent policy discussions, such as the OECD's (1998, p. 9) "new approach to lifelong learning," assert the need for education and training systems to become more responsive to the pathways of informal learning in order to aid effective linkages between education and the various spheres of our paid and unpaid work. But neither the OECD nor most other educational policy authorities yet appear to have much real appreciation of the vast amount of informal learning that is happening in society more generally, nor have they taken very serious steps to create means to aid in recognizing this prior informal learning in either educational institutions or paid workplaces.

Educational researchers, policy makers and program designers all need to become more familiar with other current adult learning activities. Conceptions of "human capital" which

estimate the workforce's skill and knowledge levels merely in terms of formal education credentials are only partial gauges. Much of the individual and collective adult learning that occurs in advanced industrial societies is often unrecognized even by learners themselves. The average of fifteen hours a week that the NALL survey finds Canadian adults reporting they spend on all their informal learning activities is a significant amount of time to devote to any activity, as is the six hours per week that those in the active labour force devote to employment-related informal learning.

This informal learning can lead people themselves to make better linkages with organized forms of education and work. Workers, visible minorities and other educationally disadvantaged groups may also begin to identify connections with the other learning and work activities in which they are involved with their families and community members, and can become more articulate with policy and program makers, employers, and labour leaders about the learning and employment programs that should be developed and offered to link to the competencies and interests that are already there. Further research on adult learning which systematically includes informal learning activities can facilitate responsiveness to the interests and receptivities of the workforce for different forms of educational programs and employment. Canada already leads the world in documenting our uses of work time and adult education activities through such periodic instruments as the Labour Force Survey, the General Social Survey and the Adult Education and Training Survey. Supplementary regular measures of informal learning along the lines of the NALL survey would also help future tracking surveys of adult learning.

Prior learning assessment and recognition (PLAR) measures can have some positive effects in addressing several inequalities in access to education programs, and such measures should be implemented as widely as possible, especially for entry into advanced education. The most extensive Canadian research on the actual effects of the very limited use of PLAR to date finds that users in college programs indeed shorten their programs, reduce their course loads and save money by using PLAR. However, in the absence of extensive external promotion of PLAR, its users are mainly successful previously enrolled college students (Aarts et al, 1999, pp. 69-73). Wider marketing of PLAR per se could narrow the participation gap somewhat, particularly if combined with lifetime learning credit schemes for those without prior educational credentials. But given the greater predispositions to consider using PLAR among the already more highly schooled, wider availability of PLAR credit measures per se will not erase other socio-economic and contextual barriers or reverse current inequalities in educational participation.

In any case, PLAR measures have no necessary effect on what occurs *within* educational programs. The reorientation of the content and delivery of these programs could have very positive recruitment effects among currently uninterested, less educated adults. Unless adult learners who are uncomfortable with traditional, teacher-centred approaches are welcomed in the classroom, access measures such as PLAR are unlikely to lead to their sustained involvement in advanced education. The perceived barriers within educational institutions primarily revolve around insensitivity to the standpoints and prior learning experiences of "non-traditional learners." There is a "cultural capital bias" which tends to denigrate the prior knowledge and skills of those with origins in subordinate social groups, such as lower classes and some visible minorities and immigrants (Livingstone and Sawchuk, 2000). The varied and often complex learning activities and capacities of the target populations of training programs, including the informal learning experiences and learning capacities of many people who have been systemically excluded from advanced education in the past, offer rich resources for new

curriculum development (e.g., Lave, 1988; Engestrom, 1992). Virtually all adults are active general learners who know a lot more than they will ever be able to demonstrate in specific education and training courses, and they will get more out of these courses if they can put more of their relevant prior learning and experience into them. So authorized curriculum designers need to more fully incorporate the relevant informal knowledge of participants in education and training programs, and to reach out to include lessons from and dialogues with uncredentialed elders who have mastered relevant bodies of informal knowledge.

High priority should be given to enhancing the language skills of the minorities who perform poorly in the dominant language, who are thereby blocked from gaining certification in other technical skills or, in the case of immigrants, from applying already acquired technical skills. We need to recognize that many with low levels of dominant language literacy have multiple other useful skills they should be enabled to apply, but that without enhanced dominant language skills they will be increasingly excluded from equitable participation in an increasingly symbolic information-dominated society. Further analysis of the very small proportion in the NALL survey who rate their reading skills as "poor" (3 percent) indicates that these people have very low course participation rates but, in their efforts to survive economically in the information age, spend more time in employment-related informal learning than those with better reading skills. Adult basic education programs to ensure relevant language competency for all are increasingly vital to avoid extreme marginalization of low-literacy adults.

More generally, neither prior exclusion from advanced education nor underemployment have seriously diminished most Canadian adults' continuing interest in learning per se. Recent financial restrictions on access to educational programs may have led to compensating increases in the incidence of informal learning. It is better to respond to this demand for knowledge by providing more equitable access provisions to good quality adult education programs than to move to simple user-pay options that may reduce immediate financial demand on government and private enterprise budgets. User-pay options promote further educational inequity between those who can afford institutionalized education and those who cannot pay much but who may have similar learning capacities and interests, and who devote as much time and energy to intensive informal learning activities. Opinion polls show that, reflecting their persistent interest in learning and in response to recent restrictions to educational access, Canadians are increasingly strong supporters of greater funding of *both* public schooling and adult education (see Livingstone, Hart and Davie, 2001).

The participation of Canadians in adult education courses already trails the levels attained in numerous other OECD countries (Office of Learning Technologies, 1998; Statistics Canada, 2000, p. 51). Our participation declined during the past decade – in sharp contrast with our world-leading post-secondary educational attainments and our extensive participation in informal learning. If our policy makers are truly committed to sustaining and nurturing lifelong learning in the information age in relation to work, consumption, citizenship and other general interests, then increasing resources will have to continue to be allocated to advanced education *and* adult education programs. In light of the popular demand for more education, and in spite of extensive underemployment, there is no other reasonable democratic choice.

Private employers are unlikely to support additional training measures that appear to work against their competitive market position. The major disincentives include a perceived ample supply of many skills in the labour market, a fear that more formally trained employees will leave for better jobs in other enterprises, and short-term cost factors (Betcherman et al,

1998a). However, moving to more flexible study-related work scheduling, providing better information about training opportunities, and collaborating with governments and public educational institutions in partnerships that pool risk and facilitate educational program access, are all low immediate cost items that can only enhance the knowledge and skills of the entire workforce and Canadian enterprises' competitive position over the long term. Firms that support the learning opportunities that most workers continue to seek could gain sustainable longer-term competitive advantages.

These advantages could result if employers modified their short-term focus on training and regarded all workers – including the many who are currently underemployed – as members of genuine “learning organizations,” both in areas currently fraught with chronic shortages (such as the skilled trades) and in those with skill surpluses (such as the many clerical workers with post-secondary degrees). One of the most potentially effective, low cost ways to do this is to implement measures to recognize and reward the prior informal learning experience of current employees in the workplace. Similarly, employer recognition that non-white employees disproportionately experience exclusion from training opportunities (Livingstone, Raykov and Stowe, 2001), and the introduction of more equitable training programs within the firm, can aid in sustaining a competitive workforce. In any case, the alternative to enhancing support and recognition for workers' learning activities – both for Canadian enterprises and the country as a whole – is to lose or alienate many skilled workers. For public authorities or private enterprises to ignore, deny, divert or try to restrict popular democratic demands for further education is likely to prove counterproductive in the information age.

Numerous other barriers to increased participation in adult education have frequently been identified, particularly for those from lower income groups, women and visible minorities, and such barriers have also been examined in detail in the NALL survey (see Livingstone, Raykov and Stowe, 2001). Major barriers include lack of money, lack of time, family responsibilities and child care. With regard to potential students' money problems, there is now great popular concern that further fee increases will increasingly prevent those from lower income families from participating in advanced education; and there is also very widespread public support for differential student assistance programs for qualified students to enable their participation, as well as almost universal popular support for income-contingent student loan repayment plans (see Livingstone, Hart and Davie, 1997, pp. 68-71).

As for the lack of discretionary time for adult courses, the 1993 AETS survey report concluded that “reduction or elimination [of this barrier] could be achieved by reorganizing work schedules, by a greater use of new technologies in the delivery of education and training and by adapting available facilities” (Statistics Canada, 1997a, p. 99). According to the 1997 AETS survey, face-to-face classroom instruction was the prevalent mode in about 90 percent of adult education courses. There is certainly scope for electronic modes of distance education delivery to make courses more available at more congenial times. Unfortunately, there is little indication yet that electronic modes have led to either more equitable access or enhanced quality of instruction (see Boshier, et al, 1997; Noble, 1998). More flexible scheduling of both employment hours and education programs by employers and educational authorities would certainly address the major barrier of inconvenient times of course offerings. There is also very strong popular support for paid educational leave, either as a legal right of all employees or as a negotiated benefit (Livingstone, Hart and Davie, 1999, p. 62). In short, popular political support

exists for a variety of technically available measures related to the flexible scheduling of paid work and study time and increased opportunities for adult education.

Family responsibilities and lack of child care provisions represent significant barriers to educational participation for young parents and especially mothers. While younger men are more likely to do a somewhat greater share of domestic labour than their fathers, traditional gender role attitudes still obtain within the typical Canadian household (see Livingstone and Luxton, 1996). More structural changes are needed in society at large, particularly greater provision of child care facilities. The obvious way to do this in Canada is through state-funded early childhood education programs. Most Ontarians, for example, now believe that education programs should be available in all school boards to all children over the age of 3 (Livingstone, Hart and Davie, 1997, pp. 19-20). As previously noted, Canada trails nearly all other western industrial countries in early childhood education, and its social benefits for children and society in general have been well established by extensive research (Keating, 1999). The previously ignored additional benefit is that more young parents could continue their own education.

Implementing proactive measures such as more flexible course scheduling, tuition fee subsidies, child care provisions, PLAR, and responsive curricula, could close the education access gap somewhat for those from disadvantaged social groups, while not in itself resolving the problem of underemployment of Canadians' skills and knowledge in our paid workplaces.

Employment Reforms to Address Education-Jobs Gaps

The growth of knowledge is never a bad thing. But the underemployment of acquired knowledge and skills in current paid workplaces is becoming a significant problem in Canada, as well as in other OECD countries (Green, McIntosh and Vignoles, 1999). The reasonable solution to this problem is not to restrict access to educational institutions through higher fees or other means, which merely increases social inequities between those from affluent families and the rest of society (see Livingstone and Stowe, 2001). As the analysis of mismatches and learning activities in Chapter 3 also suggests, underemployed people would probably continue to seek further knowledge through informal means and their actual underemployment would persist.

An obvious response to the increasing polarization of paid employment between those who feel compelled to work over 50 hours per week, and those who involuntarily work under 30 hours or are unemployed, is to redistribute employment hours among them. The most equitable and effective measures would probably involve some form of legislation of shorter regular workweeks, coupled with financial incentives for the overworked to reduce their hours and collective bargaining agreements that ensure both work-time flexibility and job security. European nations such as France, Germany, the Netherlands and Denmark have already implemented work-time reduction measures that have reduced unemployment, created more free time for the previously overworked with little financial loss, and appear to be associated with increased productivity per worker (see Hayden, 1999). In most cases, implementation has involved serious conflicts and negotiations between employers, labour unions and governments. The prospect in North America may be even more challenging. But with little public debate to date, proposals to establish a shorter standard employment week and further restrictions on overtime work to create more jobs have been supported by about half of Canadians in recent opinion surveys (Livingstone, Hart and Davie, 1999, pp. 61-62). If the alternative is to witness

the persistence of our current polarization of work time, along with chronically high numbers of actively unemployed and discouraged workers, can we afford to ignore this challenge?

Even with significant paid work-time reduction measures, credential and performance-based conditions of underemployment could well persist among the employed labour force. If the measures of mismatch cited in Chapter 3 are even remotely accurate, further workplace reorganization is needed to allow many workers to use their skills and knowledge more fully in their jobs. The NALL survey's finding that the strongest positive relationship between work and learning is found in voluntary community settings appears to support the thesis that greater discretionary control or self-management can lead to fuller use of work-related skills and knowledge. Previous research has also found that increasing employees' discretionary control in paid workplaces is related to greater use of useful knowledge and greater integration of informal work-related learning with organized education and training programs (see Livingstone, 1999a, pp. 226-275).

A growing number of Canadian enterprises and unions are beginning to comprehend the magnitude of performance underemployment, and are taking positive steps to more effectively recognize the knowledge and skills of their workers, mainly through job redesigns that share strategic information, involve workers in decision-making, and otherwise grant them greater discretion in the social relations of production (see Lowe, 2000 for a recent overview). There are multitudes of specific innovations – including work teams, job rotation, job enrichment, incentive pay, flexible scheduling, etc. – that have sometimes successfully enhanced both the quality of working conditions and productivity per worker. But as Lowe (2000, pp. 151, 174-75) keenly observes, it is not specific job innovations that led to sustaining such high quality paid workplaces, but the creation of a deeper organizational and societal work culture based on the following principles:

- a basic right to paid work that provides a decent living standard and economic security.
- opportunities to engage in tasks that are personally fulfilling and that encourage initiative and creativity.
- healthy and safe paid work environments that support a balanced family and personal life, alongside employment goals.
- worker participation in decision-making as a basic right, including a culture of openness about strategic information and required resources.

Implementing these principles in many current paid workplaces, to say nothing of the Canadian economy in general, will be very difficult. But the documented existence of a workforce that is amply qualified to achieve such participatory workplaces, and the alternative prospect of increasing underemployment, should stimulate serious continuing efforts in this direction.

In immediate terms, the general recognition of widespread underemployment of the existing pool of knowledge and skills should encourage employers, labour unions, employees, governments and local community groups to develop collaborative programs to identify more fully the actual local pools of knowledge and skills in their enterprises and communities, and to cooperate in community development initiatives to match people's skills and knowledge with local economic needs through democratized job redesign, work redistribution, and creation of environmentally sustainable new jobs (e.g., Milani, 2000). The most important economic role that professional educators can perform in this context is to participate actively in developing

accurate profiles of the current community skills and knowledge pool, and the types of local jobs to which both underemployed and formally underqualified people could constructively direct their often very impressive learning capacities, as well as to disseminate this information through the schools. No other occupational group is as well situated to serve as community resource coordinators for developing the work of the next century.

The expanded conception of work, which includes recognition of unpaid housework and community volunteer work as very important contributors to the reproduction of human life, must continue to be documented in order to more fully understand work and learning interrelationships in advanced industrial societies. It is evident that various new forms of paid employment (e.g., environmental cleanup programs, domestic care companies, other new socially useful products) in both public and private sectors are being created by the commodification of some of this work. While such jobs may somewhat alleviate unemployment, most of the domestic and household service jobs created are likely to be in small businesses where self-employed, contract or home-based workers face the largest challenges to building high quality work cultures and to overcoming performance underemployment conditions. More equitable divisions of paid and unpaid labours between the sexes can certainly aid women to participate more fully in the labour market, although they cannot ensure reductions in their underemployment within paid workplaces. As our pool of knowledge and skills continues to grow, the redistribution and democratization of already existing forms of paid employment is likely to increasingly become the primary option for closing education-jobs gaps.

The dominant response to such employment problems, even when a general absence of technical skill shortages is recognized, stresses more training for a knowledge-based economy (e.g., Expert Panel on Skills, 2000). Continuing pursuit of knowledge is never a bad thing and will *certainly* be needed to cope with the continual workplace, environmental and social changes that are endemic to our market-based economy. Employment reforms would also contribute to the solution of related underemployment and underqualification concerns, as well as an array of associated social problems.

Canada has produced previous governmental advisory reports on overcoming the separation of work and learning (National Advisory Panel on Skill Development Leave, 1984) and options for redistributing paid employment (Advisory Group on Working Time and the Distribution of Work, 1994), and it is now time for *a national forum which brings together all major interest groups to consider concerted employment policy initiatives to address the problem of education-jobs gaps*. With our high levels of formal education and underemployment, and the research knowledge now available about our patterns of paid and unpaid work and organized and informal learning, Canadians are in a unique position to lead the world in an open, informed debate about the most preferable, feasible employment and educational reforms to address education-jobs mismatches, nurture development of a knowledge-based economy and continuing lifelong learning, and provide sustainable living conditions for all citizens.

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ENDNOTES

1. Informal learning can be further differentiated into "informal education" which involves a recognized mentor and "self-directed informal learning" in which individuals or groups learn on their own. This distinction will not be addressed in the current report but is discussed more fully in Livingstone (2001a).
2. For documentation of all of these trends, see Betcherman, McMullen and Davidman (1998).
3. Differences between comparable categories in these two surveys may be attributable to slight differences in age group coverage, margins of sampling error because of the smaller size of the NALL sample, specific category definitions and changing labour market conditions in the 1997-98 period. Most notably, the nonemployed full-time student category is much larger in the AETS survey because of the presence of 17 year olds. See note 4 for further details.
4. The January 1994 and 1998 Adult Education and Training Survey (Statistics Canada, 1997a, 1999a) provide measures of Canadian adults' participation in schooling and further education courses during 1993 and 1997, respectively. These are supplementary samples drawn from the Labour Force Survey (LFS) sample and modified to include all members of households over age 17. Responses have been weighted by province-age-sex and economic region population profiles based on census projections, as well as by several other technical adjustments to account for the selection of one person per household from the LFS sample of dwellings, use of a five-sixths subsample from the LFS sample and the selection of one person per household. The fall 1998 survey by the research network on New Approaches to Lifelong Learning (NALL, 1999) provides similar measures of adult education plus extensive measures of informal learning activities. This is a representative sample of all household members 18 years of age and over. Responses have been weighted by 1996 census profiles on age, sex and formal educational attainment. The AETS samples may slightly underrepresent the least formally educated Canadians while the NALL sample excludes those in the first year beyond compulsory schooling. All three samples are comparable within small margins of error with regard to general population estimates of major demographic characteristics.
5. In fact, the weighted sample results for the 1997 AETS survey indicate a drop from the 1993 level of 35 percent to less than 32 percent. The Ontario surveys found a drop from 36 percent in 1992 to 25 percent in 1998.
6. The respective questions were as follows:

AETS: "At any time during [the past year], did you receive any training or education, including courses, private lessons, correspondence courses, workshops, apprenticeship training, arts, crafts, recreation courses or any other training or education?"

NALL: "By formally organized education, we mean any course that has a specific

purpose, and was held either at a scheduled time with an instructor or group leader or by correspondence or distance education for paid employment or any other purpose. In the last year, have you taken any kind of formal organized courses, workshops or lessons no matter how long or short?"

7. All differences in factor effects on participation rates cited in the paper are statistically significant at the .01 level of confidence using both parametric and non-parametric measures of association.

8. Numerous case studies, as well as a follow-up survey with a sub-sample of the original NALL survey respondents and more in-depth questions, are being conducted by members of the NALL research network. Findings are reported on the NALL website. In addition, the Applied Research Branch of Human Resources Development Canada is systematically exploring ways of including measures of informal learning in future government-sponsored surveys (Baran, Berube, Roy and Salmon, 2000).

9. Both the estimates of magnitude and the group differences in intentional informal learning patterns should be treated as preliminary findings. This is because: (1) there are no valid precedents for the specific array and format of items about informal learning used in the NALL survey; (2) the prior empirical studies of self-directed learning found no significant group differences; (3) the relatively small sample size of the NALL sample (N=1562) allows margins of error that are nearly as large as the differences noted; and (4) informal learning is a particularly diffuse phenomenon which is prone to wide subjective differences in personal estimates. Replication studies are much needed to test the reliability of all of these original estimates as well as you determine trends in the incidence of informal learning.

10. Recent attention to the significance of lifelong learning has stimulated government agencies to begin to estimate the extent of informal learning. The 1998 General Social Survey contained a few questions on informal learning. The questions were as follows:

(1) Many people improve their knowledge of a subject or upgrade their skills on their own instead of taking a course. They read books, watch television programs, use a computer or talk to someone with the necessary expertise. Have you undertaken any of these activities during the past month?

(2) What were you learning?

(3) Which of the following media did you use?

(4) How many hours did you devote to these learning activities last month?

About 30 percent of respondents gave an initial positive response. After responding to the other

two general questions, the remaining respondents then estimated that they were spending about 19 hours per month on these learning activities, or nearly 5 hours per week. Averaged over the entire sample, this would reduce to about 1.5 hours per week, or one-tenth of the NALL estimate. This is very likely a serious underestimate of the actual current extent of intentional informal learning. The initial screening question is posed immediately after a series of questions about initial schooling, adult credit courses and non-credit courses which serve to emphasize the relation between organized education and learning, and provides no opportunity to consider informal learning in relation to any specific learning context. In addition, the question dichotomizes courses and learning on your own, suggesting that you can only do one or the other, which is clearly false. While further survey and case study research is required to provide reliable extent and trend estimates, it is likely that this initial GSS survey effort has merely found the iceberg of intentional informal learning rather than plumbing its depth.

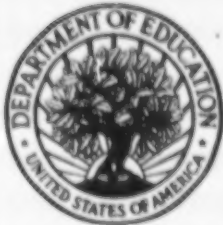
11. All measures of association of work and learning reported in this table are pairwise correlations, limited to those respondents who indicated participating in the respective forms of work. If all those who indicate they do no work in the respective spheres and therefore are very unlikely to do any related informal learning were included in the analysis, measures of association would be artificially inflated and the association between total work time and total learning time would be similarly inflated.

12. For detailed discussion of the conception of occupational groups used here and the measures of ownership status and social and technical relations of production in the labour process required to construct this variable, see Livingstone and Mangan (1996).

13. In this previous research, I review traditions of research on underemployment issues, define each of these dimensions and provide extensive empirical evidence for Canada, the United States and other G7 countries and Sweden (see Livingstone, 1999a, pp. 52-132). I also identified a further dimension of general underemployment, the *talent use gap*. This gap refers to systemic discrimination in schooling against children from disadvantaged social backgrounds in social class, race and gender terms. There is a large literature in social science which documents this process as the inequality of educational opportunity (see Curtis, Livingstone and Smaller, 1992). But it can also be regarded as a waste of the potential that many people have to achieve advanced educational credentials to qualify to enter jobs corresponding with their initial talent levels. Fuller discussion is beyond the scope of this report.

14. The GED scale is intended to embrace those aspects of knowledge which are required of the worker for satisfactory job performance. The different levels of this scale on each of three dimensions (reasoning, mathematical and language development) range from carrying out simple instructions to applying logical or scientific principles to a wide range of problems. The NALL survey data on respondents' occupations has been assigned GED scores based on the coding scheme developed by Alf Hunter and his colleagues (see Hunter and Manley, 1986) from the Canadian Classification and Dictionary of Occupations for the 1971 census, with additional

estimates for some new occupations. The strengths and limitations of these measures are discussed more fully in Livingstone (1999a, pp. 78-85). Alternative measures of occupational skill content are currently under development by Statistics Canada.



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